Use or protect - environmental capital and regional development in the rural areas of Europe: research findings and experiences from the EU project DERREG

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Research Findings and Experiences from the EU project DERREG

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Contents

Introduction: Environmental capital and sustainable rural development

Joachim Burdack

Natural resources such as clean air, water, soil, woods or special landscape features are increasingly recognized as important assets for the development of rural regions and are included in rural development strategies. For a long time the significance of natural or environmental resources had been underestimated and undervalued. Klaus Töpfer, the former German Minister for the Environment, articulated this very clearly in 2005: "For much too long we were of the opinion, that there are only two forms of capital relevant for development: financial capital and human capital....for too long we had the illusion that something like environmental capital does not exist. That you can use the environment, the environmental capital, for free and that you do not need to re-invest in this capital stock" (Klaus Töpfer, speech at the 5. Jahrestagung des Rates für Nachhaltige Entwicklung, Sept. 6, 2005 in Berlin. – Translation by the author).

Töpfer underlines that environmental resources form a particular form of capital (environmental capital) in a territory and that they cannot simply be treated as public goods and thus as 'free' inputs for economic activities. The exploitation of natural resources may not have costs for the individual user but it certainly incurs social costs due to negative externalities of economic actions. So, in economic terms the task is to assign a price tag to natural resources and may be described in theoretical terms as an 'internalisation of external effects' (Coase 1960).

There is an inherent tension - and some may even argue a contradiction – between the use of natural resources and protecting them. Regional development policies have to cope with this challenge by finding ways to avoid overstraining natural resources. The task of a sustainable natural resource management is further complicated in the context of globalisation as actors from outside the region and decisions taken elsewhere become potentially more important. This development may increase the pressure on the exploitation of natural resources, lead to local conflicts and endanger the sustainable use of regional environmental capital.

1 The DERREG Project

The case studies presented in this volume are first results of a research project on globalisation and rural development ('Developing Europe's Rural Regions in the Era of Globalization – DERREG') that has been funded under the Seventh Framework Programme of the European Union. The DERREG research consortium consists of nine research institutes in seven European countries. The empirical research is conducted in ten case study areas in eight countries (see Fig. 1).

An initial starting point of the project's research endeavours was the observation that globalisation is one of the key factors influencing the development of rural areas in Europe. While there is extensive research on the effects of globalisation in urban and metropolitan areas, the knowledge of rural areas under the influence of globalisation is very limited. The analysis of globalisation influences in rural settings has often been focussed to specific sectors and partial processes without an overarching integrative perspective. The main research objective of the DERREG project is thus the integrative analysis of the challenges posed for rural regions by globalization. This research approach takes into consideration that globalisation is a multi-dimensional process with

Fig. 1: DERREG project partners

economic, social, cultural, political dimensions. The issues of globalisation and rural development are treated in four broad research themes:

- global engagement and local embeddedness of rural businesses,
- international mobility and migration of rural populations,
- environmental capital and sustainable rural development,
- capacity building, governance and knowledge systems.

It is of course the third theme on 'environmental capital and sustainable rural development' from which the presented case study reports are derived and which is of special interest here. The key issues addressed within this topic are the "repositioning of rural environmental resources in global discourses and networks and the consequences of the exploitation of 'environmental capital' for rural regions" (DERREG 2008, p. 22) and in particular two key dimensions of this relationship: the engagement of global and regional actors in exploiting regional environmental capital and contesting the environmental implications of regional development strategies by regional and global actors. In doing so, the research wants to contribute to the development of new knowledge with respect to the following points:

- The role of exogenous and endogenous actors in the valorization of scenic rural landscapes as amenity sites attracting international visitors.
- The influence of global environmental discourses, international agreements and transnational NGOs in the management of rural regional environments, and in the negotiation of tensions with economic development priorities.
- The repositioning of different forms of energy production with respect to local and global environmental concerns and regional development strategies.

2 Environmental Capital and Rural Development: Some Comments and Basic Concepts

The case studies presented in this volume relate to several issues and theoretical discourses in rural development. It may be useful to 'set the scene' for the following case studies by briefly outlining some of the basic concepts and to provide some background information to relevant issues. In particular this concerns questions regarding the potential impact of globalisation on rural regions (2.1), aspects of managing environmental capital (2.2), natural resources as a form of capital (2.3), the definition and characteristics of rural areas (2.4), and approaches to rural and regional policy development (2.5).

2.1 Globalisation and Rural Areas

Globalisation is one of the many forces that influence the development of rural areas in Europe and the impact of globalisation is likely to increase in the future. Globalisation is often perceived as a threat to rural regions because it may lead to the marginalisation of rural economies, increase tendencies for out-migration and population loss and thus contribute to a further peripheralisation of rural areas. The fear of an increasing dependency of rural areas on the global centres is well expressed by Epp and Whitson: "The countryside is coming to serve two new and very different purposes – playground and dumping ground – as the traditional rural economy declines" (Epp and Whitson 2001, p. 15).

On the other hand there is, however, evidence suggesting that globalisation may offer a series of opportunities for rural regions. This may concern the development of physically attractive rural regions as sites for amenity consumption and tourism. Some rural regions may profit from larger markets for and the global marketing of niche regional produce. The potential ubiquity of the global communications infrastructure may support investments in high-tech industries in rural regions.

Woods (2007) synthesizes the influence of current globalisation processes in his concept of the 'global countryside'. The global countryside represents the ways in which rural regions are reconfigured by globalization processes. The concept of the 'global countryside' does not describe existing rural areas but a hypothetical space that represents the end-point of current global impacts on rural areas: "Rural localities are transformed by new connections that are forged with global networks, global processes and global actors; yet this transformation cannot occur without the enrolment and acquiescence of local actors, both human and non-human, whose very incorporation in turn modifies the networks of which they are part to produce new, hybrid outcomes. Viewed from this perspective, globalization cannot be reduced to the subordination of the local by global forces; nor the power of the global to domination. Rather,

the impact of globalization in reshaping rural places is manifest through processes of negotiation, manipulation and hybridization, contingent on the mobilization of associational power, and conducted through but not contained by local micro-politics" (Woods 2007, pp. 501-502). The emergent 'global countryside' is not a uniform space but is articulated differentially in particular rural areas. The characteristics of the global countryside include, according to Woods (2007, pp. 492-494), the following:

- Economic activity in the global countryside is increasingly dependent on commodity networks, with consumption distanced from production.
- There is an increasing corporate concentration and corporate networks operate more and more on a trans-national scale.
- The global countryside is both origin and destination for migrant labour.
- Tourists are attracted to sites of rural amenity.
- International property investment for commercial and residential purposes becomes more important.
- Specific landscape features are characteristic for the global countryside, for instance: deforestation and afforestation; mines and oilfields; tourism infrastructure; the transplantation of plant and animal species.

2.2 Management of Environmental Capital

Although it is sometimes argued that the notion of 'capital' also implies that the different forms of capital should be regarded as exchangeable, there is also awareness, that environmental capital requires special attention and specific management rules. Certain natural factors or qualities such as clean air and water are indispensable for human life and must be secured. In line with this mode of reasoning a commission of the German parliament (Deutscher Bundestag 1998) formulated a set of five essential rules for managing environmental resources. The first four management rules apply to the functioning of the environmental systems and the use of natural resources. The fifth rule focuses on human health and well-being as an important aspect of economic activities.

The *regeneration rule* states that exploitation of renewable natural resources should not exceed their rate of regeneration to ensure that the stock is not depleted. Renewable natural resources like wood or fish for instance should only be used to the extent of their capacity to reproduce their stock size to assure long term use. The *substitution rule* demands that the exploitation of non-renewable resources such as oil or coal should be limited to the amount that can be substituted by alternative, renewable resources or to the extent that a higher rate of efficiency can compensate the loss. This higher efficiency may for instance be reached by introducing new technologies. The *rule of resilience* implies that the self-cleansing capability of natural systems should not be exceeded and that 'critical loads' and 'critical levels' of inputs are to be considered. The *rule of adoptability* states that the rate of change should not over-stress the natural systems. Finally, the fifth management rule *(rule of risk avoidance*) defines that incalculable risks to human health should be avoided. It will of course be much easier to agree in principle on – for instance – the 'avoidance of incalculable risks' than on specific criteria and statistical thresholds as to when a risk becomes incalculable respectively unacceptable. Although the rules are thus very general 'rule of thumb'-guidelines they provide a useful frame for thinking about the balance of using and protecting environmental resources.

2.3 Forms of Capital and Rural Development

The term 'capital' generally identifies something that has the potential to produce something economically desirable (Goodwin 2006). A capital stock is thought to generate beneficial flows. The notion of capital also implies that a stock has to be managed to maintain the capital stock's value. The concept of capital has been used to describe different stocks of resources for regional development as 'territorial capital' in recent years. This led to the identification of different forms of capitals such as human capital, social capital and environmental capital. Extending the notion of 'capital' to include terms like 'human capital' or 'social capital' has often been criticised as a reductionism to instrumentalize phenomena that have a value on their own. Although these arguments certainly have some ethical validity, it makes sense on a heuristic level to address human skills and environmental resources as forms of capital. Addressing these resources as forms of capital makes it evident that environmental inputs in production processes have a value (are not 'free') and that reinvestments may be necessary to maintain or renew the stock.

The evolution of regional development policies and strategies in the last decades can be described as a series of dominant trends. One of these trends is clearly from interventionist, 'top-down' approaches to decentralised, 'bottom-up' strategies. Another trend may be described as leading from exogenous to endogenous development and then on to 'integrated rural planning'. In a different perspective this evolution of regional development policies may also be formulated in terms of an extension or inclusion of different forms of capital as necessary factors for regional development. The traditional centralist and "Fordist" development policy approach of the 1950s and 1960s was mainly based on *financial* or *produced capital*. Transportation and technical infrastructure of lagging areas were upgraded and new jobs were provided by branch plants of major industries. The new industries required new skills from their work force and shifted the focus to the importance of the *human capital* (health, education, skills) of a region. The shift in policy from exogenous to endogenous development made regional human capital even more important and also *environmental capital* (renewable and non-renewable natural resources, bio-diversity) became relevant. In the last decade integrated rural and regional development policies that combine endogenous and exogenous impulses became prominent and *social capital* (trust, social ties, social networks, capacity for collective action) was discovered as an additional factor of regional development.

2.4 Diversity of Rural Space

Rural areas are often defined in a negative way as a residual spatial category. In that sense rural areas are the space that is not urban or, in other words, the total area minus the urban area forms the rural area. Measures of density – most often expressed in terms of population or settlement density – are then used to form thresholds between urban space and rural space. A widely used threshold is a population density of 150 per km^2. The OECD defines communities with a population density of less than 150 per km^2 as rural. A region is then for instance classified in one of three categories (OECD 1994) (see Fig. 2):

- A predominantly rural region has more than 50% of the population of the region living in rural communities (with less than 150 inhabitants/km^2).
- Significantly rural regions have 15 % to 50 % of the population of the region living in rural communities.
- A predominantly urban region has less than 15 % of the population living in rural communities.

Other statistically based delineations of rural areas include measures of accessibility to urban centres. Aspects of diversity of rural space are then for instance considered by differentiating rural areas close to urban centres and remote rural areas.

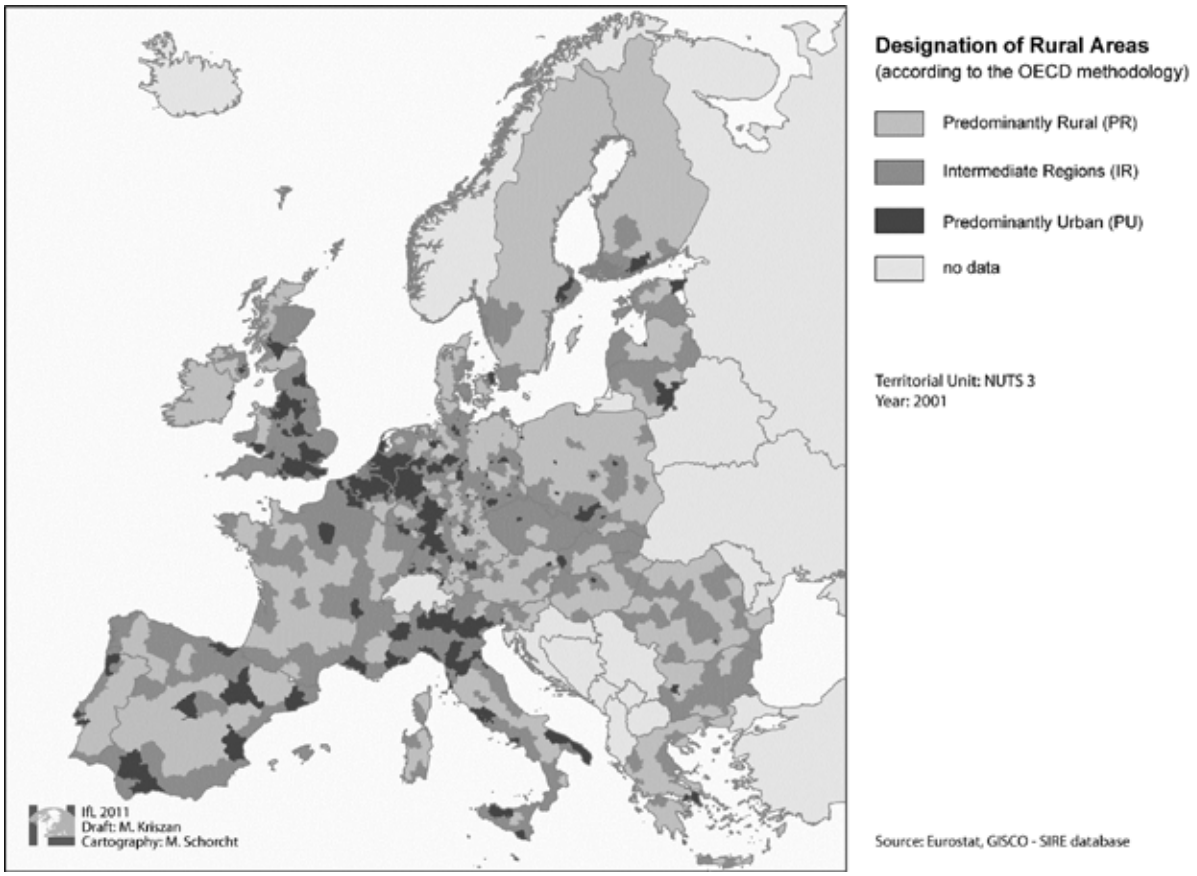

Fig. 2: Designation of rural areas according to the OECD methodology

A typology of rural areas not based on accessibility and population density but on economic activity and development patterns was presented by the ETUDE project financed by the EU in FP6. The spatial diversity of rural areas is described in six typical categories, with a special emphasis on the role of agriculture (Van der Ploeg et al. 2008), based on the quantitative significance of agriculture. These categories include:

- In *specialized agricultural areas* farming is characterized by a high degree of specialization and is only remotely linked to other economic sectors. Examples for this type of rural region are Flevoland in the Netherlands or the Bassin Parisien in France.
- *Peripheral areas*, are regions in decline where farming has never played an important role, or where agriculture is declining. The Mezzogiorno in Italy exemplifies this type of region.
- In *new rural areas*, multi-functionality in agriculture is developing at the level of the enterprise. The multi-functional enterprises are increasingly intertwined with the regional economy and society and are contributing to regional environmental qualities, such as biodiversity and landscape.
- *Segmented areas*, where multi-functional land use, rather than multi-functional enterprises, is the distinctive feature. The Po Valley in northern Italy is an example.
- *New suburbia*, dispersed settlement patterns and sprawl are emerging. Commuting to urban areas is important. New suburban areas develop around most major urban centres.

- *Dreamland*, is a high amenity region with often seasonal patterns of use. An example is the Latvian coast were many houses are used in the summer but are abandoned in the winter. Dreamlands may overlap with other categories.

Diversified rural areas may also require different development approaches and policies. This aspect is specifically taken into account by Murdoch (2000) who categorises rural areas according to the character of regional economic networks. Murdoch (2000) differentiates three types of rural areas based on the presence and importance of vertical and horizontal economic networks. Horizontal networks are networks of regional actors that facilitate market access to local enterprises. Vertical networks on the other hand are chains of food production and processing often dominated by international companies.

- The first type of 'rurality' or rural area is called 'clusters of innovation'. These are rural regions were horizontal economic networks dominate. Typically the social and economic structure of these regions is characterised by small- and medium-sized enterprises, a high level of social capital and trustful relationships. An example mentioned by Murdoch is the 'Third Italy'. Policies of innovation networks and learning regions can be applied in the 'cluster of innovation' regions to create and maintain economic success.
- The second type of rural region, the 'hot spots of standardisation', are areas dominated by vertical networks and frequently by intensive forms of agricultural production and trans-national networks of the food sector. These areas may penetrate global markets with their products.
- In the third type of rural region neither horizontal nor vertical networks are sufficiently established. Murdoch asserts the majority of rural spaces in Europe belong to this category. Here 'soft' forms of intervention like support in capacity building and developing endogenous resources is insufficient for regional development and traditional forms of state support are still needed.

2.5 Shifts in Development Policy Approaches for Rural Regions

In the Fordist-era until the 1970s, regional development policy for rural areas was most often centrally designed. The top down approach was based on the logic of centralised strategic decision making and direct state intervention to construct technical infrastructure and provide for incentives for investors. The emphasis was "on rural-regional development as something that was done to and for rural regions, not as something done by and with rural communities" (Woods 2009, p. 70). The implementation of plans was then delegated to regional development agencies or regional government institutions.

The increasing dissatisfaction with this standardised procedure led to new approaches that paid more attention to specific features of the regions and involved regional actors to a larger extent. The resulting 'bottom-up' approach is largely based on participation, partnership, capacity building. State funding is often provided through competitive bidding processes. In that context 'rural governance' has become an important concept and the region is now seen as a 'socio-cultural actor' (Bruckmaier 2000) and policies are thus not only made for the regions but also by the regions: "Regions are constituted by a plurality of actors, with the participation of the local population in decisions concerning development and self-management (rather than solely by governmental institutions and powerful actors) being at the core of the new governance" (Bruckmaier 2000, p. 219).

The model of endogenous development emphasises the resources present in a region. These resources should be developed and marketed by local and regional initiatives. In particular agricul-

tural and traditional products are often marketed by regional initiatives and also attractive landscape features and symbolic resources such as regional culture and heritage are applied. The aim is to develop a more sustainable regional economy that generates more regional benefits by regional value chains. The development potential is restricted by the regional resource base, so it is not a viable development alternative for all types of region (Ilbery and Kneafsey 1998). Brugger (1986) criticises that development can be too endogenous, in that it may ignore external effects and global economic processes. Van der Ploeg and Long (1994) suggest, that a balance of 'internal' and 'external' elements is an important requirement of successful regional development schemes. Perhaps the crucial distinction should be between local and external control of the development processes.

The OCED (2006) identified a new paradigm of rural development where agriculture is replaced as a key target sector by other sectors of the rural economy (tourism, ICT industry etc.). The main objective on farm income and farm competitiveness is shifted to the valorisation of local assets and competitiveness of rural areas and the main policy tools employed shift from subsidies to investment. This integrated approach seeks a synthesis between endogenous (local, bottom-up) and exogenous (extra-local, top-down) links. Integrated rural development is a place-based, cross-sectoral policy approach. The different sectors of a region should be integrated into a joint strategy for regional development. The approach is based on the assumption that rural regions are diverse and cannot be dealt with in a top down 'one size fits all' approach. The individual strengths of a specific region should serve as the basis of development (Giessen and Böcher 2008, p. 8). There is a strong bottom-up element in the integrated rural development approach based on the hypothesis that the actors in the region themselves can best identify development potentials. Integrated rural development is seen as a long-term process that is continually evaluated by the actors.

3 The Case Studies

The five case studies on the exploitation and protection of environmental resources and regional development presented in this volume come from four European countries: the Czech Republic, Germany, Ireland and Slovenia. The case studies cover three different general themes: the management of rural landscapes, the forestry sector and energy production.

Wioletta Frys and Birte Nienaber, examine problems in the designation and management of protected landscapes in the Bliesgau biosphere reserve in the Saarland. Barbara Lampič and Irena Mrak deal with the same topic in the Pomurska region in Slovenia. They focuse specifically on the opportunities for exploiting these natural environments for sustainable tourism and 'eco-economy' initiatives.

Reflections on forestry and sustainable development are the theme of John McDonagh's, Maura Farrell's and Marie Mahon's case study on the West Region of Ireland and the paper co-authored by Hana Vavrouchová, Pavel Trnka, Kristýna Novotná and Lenka Jakešová on the South Moravian Region in the Czech Republic.

In his study of the Oberlausitz (Upper Lusatia, a region near Dresden in Germany) Michael Kriszan analyses the incorporation of local and global environmental concerns in regional development strategies relating to energy production. Problems and opportunities of traditional brown-coal mining and renewable energy projects are examined.

The general research questions and issues that guided the case studies include:

- What tensions exist between conservation and commodification in managing the natural environmental and what actors are involved?
- How are the tensions between different values and discourses negotiated and resolved?
- What is the relevance of 'environmental capital' in regional development strategies?
- How did the perception of environmental conditions and potentials change during the last decade?

References

Bruckmaier, K. (2000): LEADER in Germany and the Discourse of Autonomous Regional Development. In: Sociologia Ruralis 40 (2), pp. 220-227.

Brugger, E.A. (1986): Endogenous development: A concept between Utopia and reality. In: Bassand, M. et al. (eds.): Self-Reliant Development in Europe. Theory, Problems, Actions, pp. 38-57. Brookfield (Vermont).

Coase, R. (1960): The Problem of Social Cost. In: Journal of Law and Economics 3, pp. 1-44.

DERREG (Developing Europe's Rural Regions in the Era of Globalization) (2008): Description of Work-Annex 1. (Manuscript).

Deutscher Bundestag (1998): Enquete-Kommission „Schutz des Menschen und der Umwelt – Ziele und Rahmenbedingungen einer nachhaltig zukunftsverträglichen Entwicklung". Berlin.

Epp, R. and D. Whitson (eds.) (2001): Writing off the rural West: globalization, governments and the transformation of rural communities. Edmonton.

Giessen, L. and M. Böcher (2008): Integrated Rural Development Policy in Germany and its Potentials for new Modes of Forest Governance. Wien. (= InFER-Research Report 2008/5).

Goodwin, N. (2006): Capital. In: Cleveland, C. (ed.): Encyclopedia of Earth. http://www.eoearth.org/article/Capital (Retrieved October 18, 2010).

Ilbery, B. and M. Kneafsey (1998): Product and place: promoting quality products and services in the lagging rural regions of the European Union. In: European Urban and Regional Studies 5, pp. 329-341.

Murdoch, J. (2000): Networks. A new paradigm of rural development? In: Journal of Rural Studies 16, pp. 407-419.

Nemes, G. (2005): Integrated rural Development. The Concept and its Operation. Budapest. (=KTI/IE Discussion papers 2005/6).

OECD (1994): Creating rural indicators for shaping territorial policy. Paris.

OECD (2006): The new rural paradigm: Policies and governance. Paris.

Van der Ploeg, D.J. and A. Long (eds.) (1994): Born from within: practices and perspectives of endogenous rural development, Assen (The Netherlands).

Van der Ploeg, J. D., R. van Broekhuizen, G. Brunori, R. Sonnino, K. Knickel, T. Tisenkopfs and H. Oostindie (2008): Towards a framework for understanding regional rural development. In: Van der Ploeg, J. D. and T. Marsden (eds): Unfolding Webs: the dynamics of regional rural development, pp. 1-28. Assen (The Nederlands).

Woods, M. (2007): Engaging the global countryside: globalization, hybridity and the reconstitution of rural place. In: Progress in Human Geography 31 (4), pp. 485-507.

Woods, M. (2009): DERREG-Literature Review and Conceptual Framework. Aberystwyth.

Conflicts and Opportunities for Regional Development arising from the Designation of Protected Areas – the Example UNESCO Biosphere Reserve Bliesgau

Wioletta Frys, Birte Nienaber

1 Introduction to the thematic fields

The rural environmental resources have to be rescheduled in an ever-changing global context and in international networks. Furthermore, the effects of exploiting 'environmental capital' to advocate economic development are an important pillar of sustainable rural development.

The interaction of exogenous and endogenous actors, responsible for designating and managing protected landscapes, the possibilities of exploiting these areas to promote sustainable tourism and initiatives of an 'eco-economy' are the subject-matters of the following article. The focus is on the conflicts and opportunities for regional development arising from the designation of protected areas. To explore the complexity of problems within this theme, the example UNESCO Biosphere Reserve Bliesgau will be used.

Sustainability has recently been used for legitimising unbridled economic growth, industrial expansion and globalisation, the protection of biodiversity, maintenance of ecosystems, social justice, peace and the elimination of poverty (Bowler et al. 2002, p. 5). At the very least, this suggests a paradox as sustainable development is considered to support both the maintenance of the status quo and radical change (Robinson 2008). Against this background, Brown (2001) promotes a radical change and suggests the idea of an environmentally sustainable economy. An 'eco-economy' is defined as an environmentally sustainable economy characterized by the framework for the formulation of economic policy established by the principles of ecology as well as by economists and ecologists working together in order to shape it (Brown 2001, p. 4). According to Brown, ecologists and economists working together can establish and form an eco-economy sustaining progress (Kriszan et al. 2010, p. 4).

The close spatial connection between agriculture and a UNESCO biosphere reserve causes a variety of conflict situations. The economic development and thus the further growth in the region accompanies the effort concerning the recognition of the biosphere reserve according to the international guidelines of the UNESCO, which mean restrictions using large parts of the protected area. In such a nature protection area the current ecological condition cannot be allowed to deteriorate and the environmental quality should be conserved.

Use restrictions on forestry and agriculture affect these economic sectors. Generally they mean both a quantitative reduction of production space and a constraint of agriculture products as well as qualitative reduction of the production basis (Klein 1996, pp. 89-90). These restrictions lead to a conflict that must be recognized early to offer appropriate conflict resolutions. A conflict in regard to nature protection is understood as an interaction process that begins with a triggering incident, ends in temporary or permanent results and in addition, has long-term effects (see Fig. 1). This understanding of conflict gives important insights into the conflict management in practice. The analysis of the mutual activities makes it possible to explain the development process of a conflict and the reasons for its escalation. The conflict management from this perspective is an integral part of conflict resolution. It begins with the emergence of the conflict. Conflict resolution

thereby stands for a range of intervention measures being used to limit conflicts, conflict management and control as well as conflict prevention (Glasl 1999).

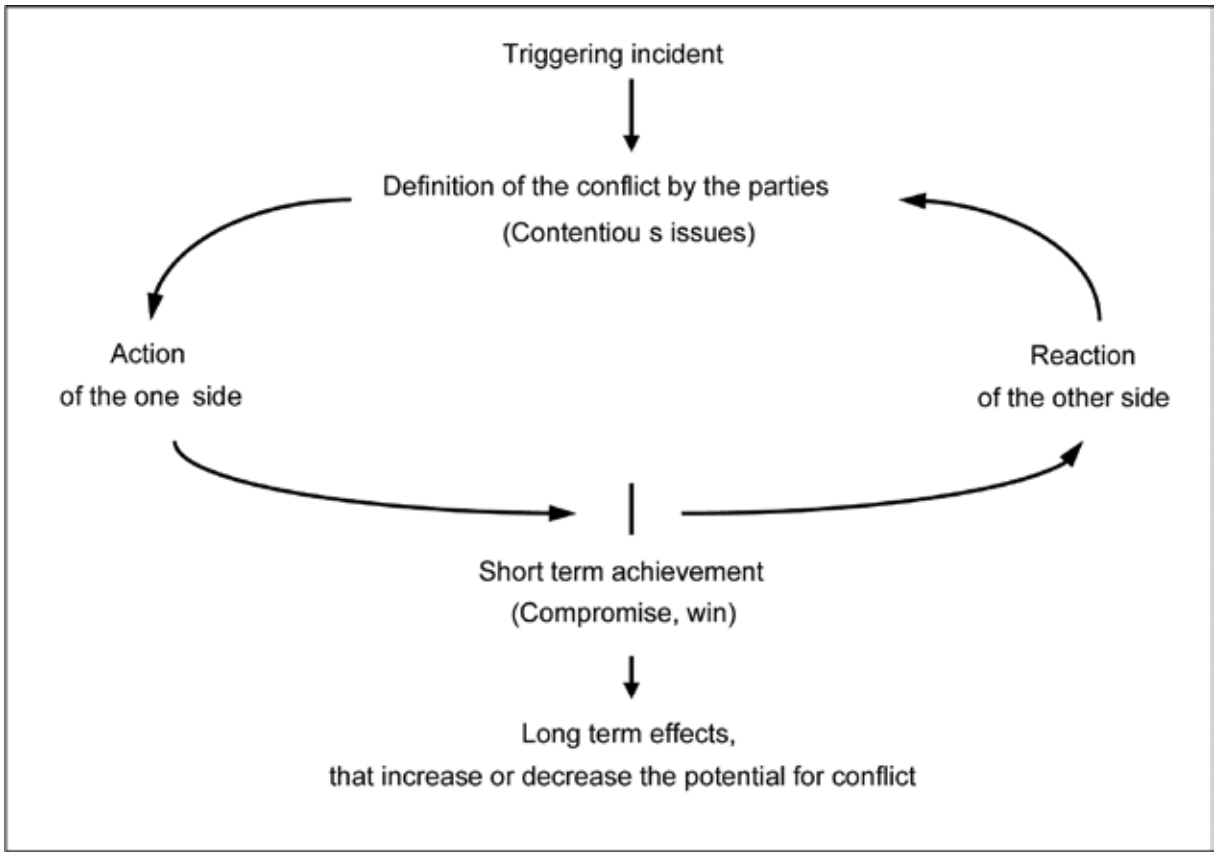

Fig. 1: Conflict as a process

Source: translated according to Berkel 1997, p. 40 and Ziener & Brandenburg 2007, p. 544

The concept of 'biosphere reserve' is a tool that must be located between conservation and economic development, as it promotes a sustainable regional endogenous development and takes the holistic economical, socio-cultural, political, environmental and democratic rights into account. It is an environmental and economic conversion of a region in keeping with the continued development and adaptation to modern realities rather than a traditional conservation of economic systems (Brodda 2002, p. 21, see also Erdmann et al. 1998).

The use of protected areas as tools for regional development not only requires the acceptance of the affected population and stakeholders but depends on knowledge of what attitudes and expectations rule in a protected area (Mose 2009, p. 10). Accordingly, the following identification of conflicts in the Biosphere Reserve Bliesgau is very important for the further development of the UNESCO Biosphere Reserve Bliesgau in Saarland, Germany as well as for establishing and developing other new biosphere reserves.

2 Background of the research and methodology

The subject matter discussed in the article presents research results in the UNESCO Biosphere Reserve Bliesgau, which were obtained within the work package 'Environmental capital and sustainable rural development' in the DERREG project (Developing Europe's Rural Regions in the Era of Globalization) funded by the EU Seventh Framework Programme (FP7). The work package examines – corresponding to the DERREG project proposal – how rural environmental resources have to be resche-

duled in an ever-changing global context and in international networks. Furthermore, it sheds light on the effects of exploiting 'environmental capital' to advocate an economic development, in terms of an 'eco-economy', being a pillar of sustainable rural development (DERREG Consortium 2008).

The interaction of exogenous and endogenous actors, responsible for designating and managing protected landscapes, the possibilities of exploiting these areas to promote sustainable tourism and initiatives of an 'eco-economy' are the subject matters of our research in Saarland. To explore these tasks, the example of the Biosphere Reserve Bliesgau was used as the case study region.

The following research results are based on expert interviews with key actors, who were directly or indirectly involved in the development process of the Biosphere Reserve Bliesgau. To answer the research questions briefly introduced above, the guideline for interviews contained two parts. In the first part of each expert interview general questions were posed concerning the environmental situation, problems and conflicts, as well as regional capital and the development in Saarland. The second section addressed topic-related questions concerning the designation of the Bliesgau area as a biosphere reserve by the UNESCO. In connection with the Biosphere Reserve Bliesgau the following topics were analysed:

- Improvement of the ecological situation in Saarland.
- Development of sustainable tourism.
- Development of sustainable agriculture and forestry, as well as the regional marketing of agricultural products.
- Contribution of the Biosphere Reserve Bliesgau to the promotion of environmental protection.
- Contribution of the Biosphere Reserve Bliesgau to emphasise the topics of climate change or biodiversity.
- Management in the Biosphere Reserve Bliesgau.
- Networking of actors in the Biosphere Reserve Bliesgau.
- Measures in the fields of public relations in the Biosphere Reserve Bliesgau.
- Contribution to environmental education of the Biosphere Reserve Bliesgau.

Within the framework of the research, expert interviews were conducted with twelve representatives of different institutions in Saarland in the period from 26 November 2009 to 15 December 2009. Due to the targeted diversity of the experts, governmental as well as non-governmental institutions were involved. Furthermore, organizations were contacted whose opinions concerning the Biosphere Reserve Bliesgau differ in public.

The interviewees held leading positions in the institutions included and therefore represented important sources for acquiring information within the research context. According to the guidelines, all interviews were recorded with the respondents' consent; the semi-standardised expert interviews took one to two hours on average. To protect the intended, but also desired anonymity of the informants, their literal statements and their statement given in their general sense were encoded and given internal codes in the article.

To understand the individual statements better in connection to the involved institutions, the interviewees are divided into three groups. So it is possible to assign the opinions (logically or literally translated into English) to the concrete types of institutions without infringing personal data protection. Therefore, the following groups of respondents result from this approach (and the internal codes of the experts):

- Administrative level – five representatives interviewed (5ADL)

- Representatives of agriculture – three representatives interviewed (3AGC)
- Companies and other institutions – four representatives interviewed (4COI)

Besides this research framework, a workshop with local and regional stakeholders was organised on 13 January 2011, which 12 people from all three sectors (ADL, AGC and COI) participated in. During this workshop the key questions on the impact of the UNESCO designation compared to the research results were discussed. The remarks regarding the research findings will also be presented in this article.

3 The UNESCO designation of biosphere reserves

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is responsible for biosphere reserves worldwide in line with the 'Man and Biosphere' (MAB) program to preserve typical landscapes. In 1970, this program was initiated by UNESCO as an international and interdisciplinary scientific program. It is the task of the MAB program to develop a basis for sustainable use and the effective conservation of the biosphere's natural resources, internationally coordinated and at a national level, and to implement it in an exemplary way (UNESCO 1972). In 1995, the Sevilla Strategy for biosphere reserves was passed and published in 1996. Since then, the areas acknowledged by UNESCO have been regarded as an important instrument worldwide in order to exemplarily develop, test and implement sustainable use in an international network (Sahler and Schreiber n.d., p. 4). In Sevilla, the UNESCO general assembly established the 'Statutory Framework of the World Network of Biosphere Reserves' and defined the biosphere reserve as follows: "Biosphere reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's programme on Man and the Biosphere (MAB), in accordance with the present Statutory Framework" (UNESCO 1996).

As of June 2010, the UNESCO list of biosphere reserves included 564 model landscapes in 109 countries (UNESCO 2010a). In Germany, there are 15 territories protected as biosphere reserves, which all in all cover about three percent of the total area of Germany (excluding maritime territory). These 15 areas represent important German landscape types and the variety of habitats of biota in Germany. Most of the biosphere reserves are used for agriculture as cultural landscape. Nearly all of them are in rural areas and need strategies for the future to deal with demographic change (UNESCO 2010b). In 1979, the first two German biosphere reserves (Flusslandschaft Elbe and Vessertal-Thüringer Wald were designated). The latest German reserves are Bliesgau and Schwäbische Alb which were declared as UNESCO Biosphere Reserves in 2009 (UNESCO 2010a).

4 Significance of biosphere reserves

The significance of biosphere reserves is reflected in its duties and responsibilities. According to the Sevilla Strategy, biosphere reserves are not supposed to become closed systems of sustainability: "Rather than forming islands in a world increasingly affected by severe human impacts, they can become theatres for reconciling people and nature, they can bring knowledge of the past to the needs of the future, they can demonstrate how to overcome the problems of the sectoral

nature of our institutions. In short, biosphere reserves are much more than just protected areas" (UNESCO 1996, p. 5).

Compared to other large nature reserves such as National Parks and natural preserves, the functions of biosphere reserves are more sophisticated and complex. While the concept of National Parks is focussed on a classic local or regional sustainable conservation, biosphere reserves should develop integrated holistic sustainability concepts, which include protecting the ecosystem and genetic resources, sustainable land use and even integrating settlements. In addition, environmental research, observation and education should be launched to achieve higher relevance of the cultural landscape protection according to the principles of social, economic and environmental sustainability (Kühne 2010, p. 27; Kühne 2003 and Klein 1996) as well as integrating participative activities.

Biosphere reserves become an instrument of regional development by using bottom-up processes and promoting regional advancement of economic and social development potentials.

In conclusion, conformity with the Seville Strategy is reflected in specific tasks, such as cooperating with the local population, observing human-environment-relations as well as generating and implementing policies for the protection, care and development of nature and landscape. All of the latter highlight the significance of biosphere reserves, which are generally divided into three zones. In the process, specific tasks fall to these individual zones:

1. The **core zones** should develop with substantial exclusion of human impact. They serve as comparison space to scientific research concerning the relationship between man and environment. An entry as nature reserve is required.
2. The **buffer zones** serve as areas of environmentally-friendly use of conservation and cultivation of ecosystems that originated from or were affected by human utilization. Placing them under protection as a nature or landscape reserve is recommended.
3. The **transition zones** represent the population habitat with its various functions such as working, living and relaxing. Sustainable economic activity should unfold in these zones of sustainable use and development (Kühne 2010, pp. 27-28)

With the Madrid Action Plan 2008, the concept of biosphere reserves was further developed. According to this, biosphere reserves are not conventional sanctuaries, such as national parks, but rather follow an integrated approach which involves and focuses on a person and does not only allow but promote the sustainable use of resources (Stoll-Kleemann 2010, p. 19).

5 The Biosphere Reserve Bliesgau

Located in the Southwest of Saarland (see Fig. 2), the Biosphere Reserve Bliesgau borders on Rhineland-Palatinate in the East and on Lorraine in the South and Southwest. It includes 36,152 ha with currently 111,000 inhabitants. Six communities of the Saarpfalz district (one of them only in part) and the community of Kleinblittersdorf of the regional district Saarbrücken belong to the reserve.

The Biosphere Reserve Bliesgau is characterised by its distinctive landscape including rolling hills, large orchards and shell-limestone grounds in the South and new red sandstone in the North. The northern part of the reserve is more densely wooded than the pedologically and climatically advantaged South. The less industrialised South is more sparsely populated while the two northward regional centres, St. Ingbert and Homburg (partly included in the reserve), form an urban

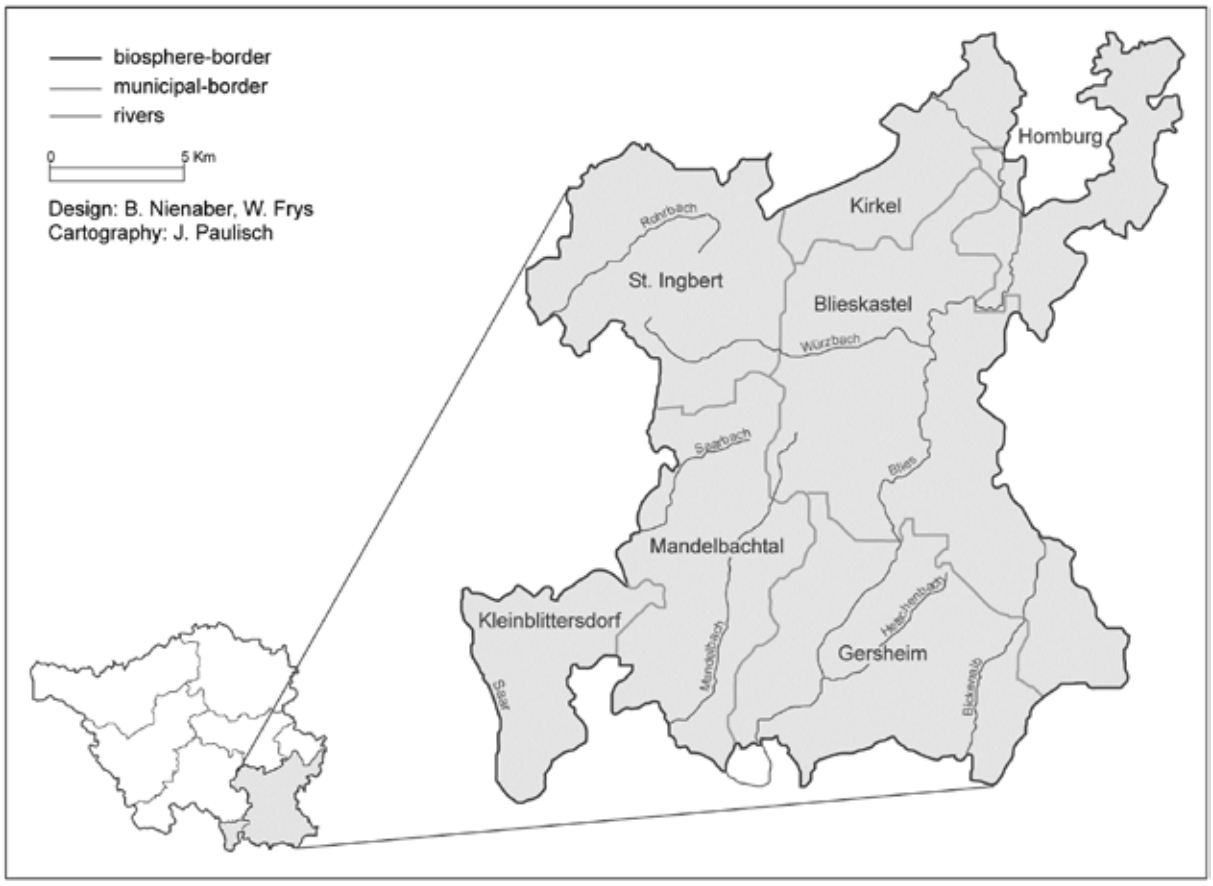

Fig. 2: The case study region Saarland (small picture) and the case study area Biosphere Reserve Bliesgau
Source: own graphic

area with up to 746 inhabitants per square kilometre (in the city of St. Ingbert).The southern part of the biosphere reserve, which is the core area due to natural geographical conditions, is characterized by low population density and is agriculturally dominated: 120 inhabitants per square kilometre (municipality of Gersheim), 197 inhabitants per square kilometre (Mandelbachtal) and 203 inhabitants per square kilometre (Blieskastel) (Kühne 2010, p. 28 and Statistisches Amt Saarland 2010).

In addition to the northern part, the more sparsely populated south-eastern part was identified as a rural area in the regional development plan of the Saarland (Saarland – der Chef der Staatskanzlei des Saarlandes 2006, p. 978). Furthermore, the biosphere reserve (excluding the urban quarter of St. Ingbert Mitte) is basically congruent with the LEADER region Biosphere Reserve Bliesgau (LAG Biosphärenreservat Bliesgau 2007, p. 2). Nevertheless, the biosphere reserve with its average population density of over 300 inhabitants per square kilometre is among the most densely populated biosphere reserves in the world (Saarland – Ministerium für Umwelt, Energie und Verkehr 2009) and the only one in Germany with an old industrialised part (the city of St. Ingbert).

Including densely populated urban quarters in the biosphere reserve is an exceptional feature. The focus of the biosphere reserve is on exemplary development of the urban-rural-relationships. According to the general purposes of biosphere reserves its goal is to develop a worldwide model region of sustainable economy including sustainable settlement development adapted to the objectives of regional planning (Taurus-Institut an der Universität Trier & Kernplan GmbH 2007, p. 1 and Saarland – Ministerium für Umwelt 2004, p. 40).

The core zone of the biosphere reserve which is a conservation area includes 10 subareas with an area of approx. 1,109 ha that is approximately 3.1 percent of the total area of the Biosphere Reserve. Unlike other biosphere reserves, there is no coherent core zone in the Biosphere Reserve Bliesgau. The buffer zone contains approx. 7,033 ha, thus about 19 percent of the total area. Existing nature reserves and conservation areas, documented FFH areas as well as forests dominate. The residual transition zone contains about 28,009 ha (Biosphärenverein Bliesgau e.V. n.d. and Saarland – Ministerium für Umwelt, Energie und Verkehr n.d., see Fig. 3).

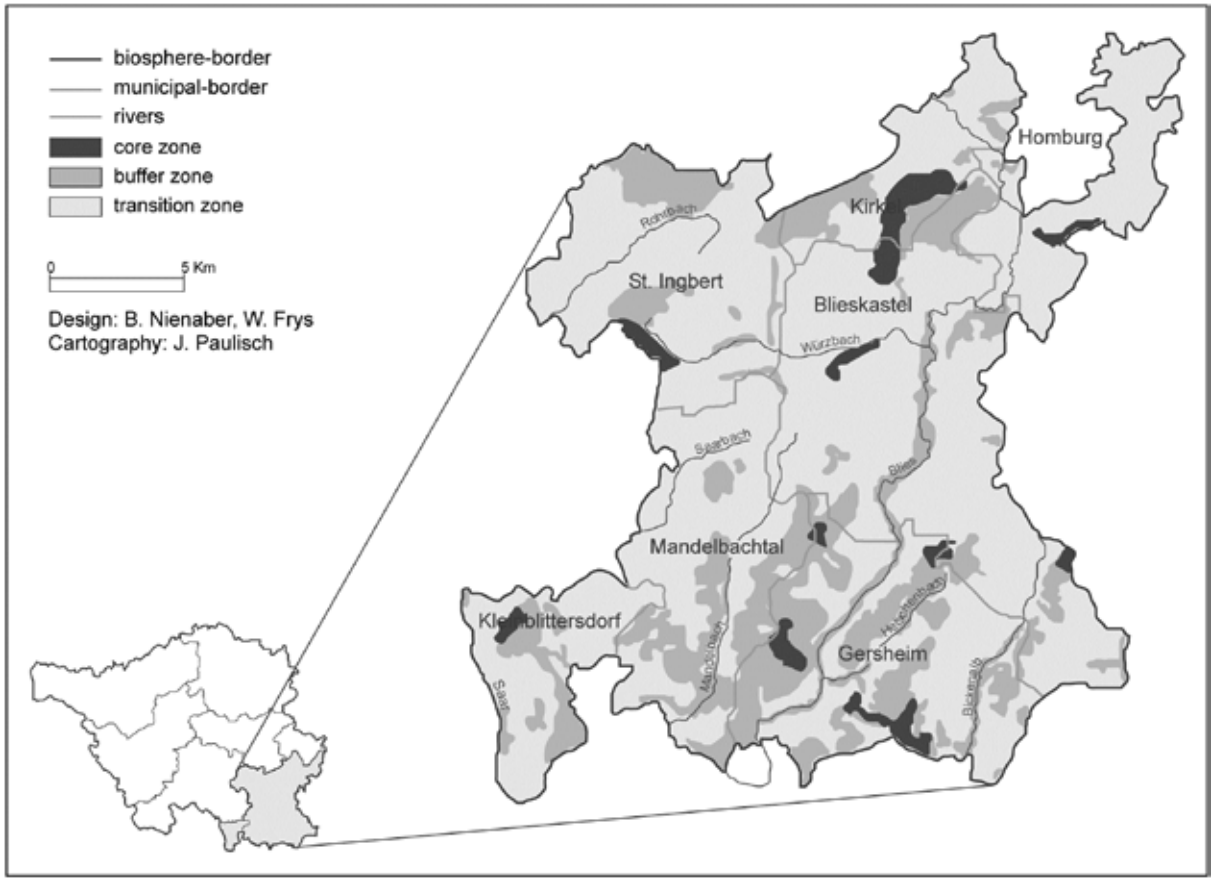

Fig. 3: The Biosphere Reserve Bliesgau and its zones
Source: own graphic

The development of the region from the initial conceptual considerations regarding the establishment of a biosphere reserve to the inauguration by UNESCO and the associated development can be split into four stages. Beginning in the late 1980s and continuing until the change of government in 1999, the initial stage was characterized by geo-ecological preliminary examinations. During the second stage between 1999 and 2004, first steps of a top-down shaped communication strategy were developed. Furthermore, considerations regarding zonation substantiated and an expert opinion regarding social and economic development was obtained. Additionally, an association dedicated to the promotion of the biosphere was founded under the name 'Freunde der Biosphärenregion' (friends of the biosphere region). During the third stage, between 2004 and 2009, voting with the MAB National Committee and a broadly based procedure of participation took place to receive UNESCO's designation as a biosphere reserve. The fourth stage of development started with the inauguration of the Biosphere Reserve Bliesgau by UNESCO. Regional protagonists obtained an extensive autonomy over the federal land to influence actions of the actors solely

though control of legality or as a member of the administrative body of the biosphere. Based on the substantial and personnel-intensive procedure of participation, it was possible to overcome pre-conceived opinions against the project. Merely representatives of the Ministry of Environment, from the employees to the minister, took part in about 250 procedures of participation in the region. Nevertheless, it is to be noted that the citizen's willingness to participate was limited. Beyond clubs, organizations, parties and councils, mostly citizens who saw a restriction of their ownership claim took the opportunity to participate (Kühne 2010, p. 27 and p. 32, see also Hussong 2006).

Since the UNESCO designation, the management of the biosphere reserve has been changed. At the top of the reserve stands the administrative body of the biosphere. Since 1 November 2009 the management of the biosphere administrative body has contained three departments (Biosphärenzweckverband 2009):

- **Department 1**: Sustainable regional development, Environmental education (Education for Sustainable Development)
- **Department 2:** Ecosystem, Research, Monitoring
- **Department 3:** Public relations, Communication/Tourism

Local municipalities support the Biosphere Reserve Bliesgau which is organized as an administrative body. However, difficulties manifested in the further development of the project: "Officially and verbally, the communes and the administrative district support the biosphere project in their administrative body, appearing to the assemblies, attending press conferences, organizing the annual biosphere festival. But hardly any of the municipal actors can truly relate to the project" (translated according to Lattwein 2009, p. 26).

Furthermore, there are not only advocates but objectors of enhancing the Biosphere Reserve Bliesgau. This induces a discussion between both sides which is presented as a result of the expert interviews in chapter 6.

Fig. 4: Landscape of the Biosphere Reserve Bliesgau
Photo: W. Frys

6 Conflicts for regional development arising from the designation of the Bliesgau biosphere as a UNESCO Biosphere Reserve

The following explanations will initially present the interview partners' different viewpoints concerning the general environmental situation in the case study region 'Biosphere Reserve Bliesgau'. The change of environmental conditions, environmental capital and regional development in regard to conservation and exploitation in the Bliesgau biosphere in the recent years will be examined more precisely. Then, opinions of the key actors in regard to the effects of the UNESCO designation will follow. Both positive views of the UNESCO conditions as a chance and duty for the region as well as opinions concerning any positive effects of the Biosphere Reserve Bliesgau and no advantages for the region will be presented as sources of the conflict. A discussion about the organization and publicity activities of the Biosphere Reserve Bliesgau as well as a summary of the environmental conflicts concludes the article.

6.1 Environmental situation and environmental problems in the Bliesgau biosphere

The general environmental situation in the Biosphere Reserve Bliesgau is interpreted differently by the interview partners. Thus, one of the experts thinks that the Bliesgau does not occupy a special position regarding the environmental situation and environmental potential but is rather subject to general problems or advantages. The small-scale structuring, the abundance of species and the diversity of the landscape structure represent the special characteristics. However, the high population density as well as a strong fragmentation through traffic routes and lots of individual traffic in the area of the southern Bliesgau belong to the environmental threats in the case study region (COI).

Furthermore, the public transport infrastructure in the case study region as well as the high level of building development connected to the high population density are being criticised. The rural character of the region and the lack of manufacturing industry that goes along with it, cause a lack of employment and consequently a high amount of commuter traffic which again damages the environment.

Other experts evaluate the environmental situation of the Bliesgau biosphere to be good or very good, especially with regard to air quality, landscape and abundance of species in the case study region (ADL, COI).

Both in comparison to other German and international regions, the Bliesgau biosphere is evaluated very positively, in particular for the examination of comparable agglomeration areas situated in border regions (ADL).

However, the tendency of the population to commute using motorised private traffic is considered to be an essential environmental problem of the case study region. Altogether, it can be stated that this circumstance, which – on the one hand – is caused by the structure of the Bliesgau and its orientation towards the surrounding agglomeration areas and which – on the other hand – is favoured by a dense road network, represents the major threat to the environment. This is seen as a problem against the background of the ozone concentrations in summer. Other factors of environmental pollution in the Bliesgau have been criticised, such as the biological patency of flowing waters and the connection rates to sewage water treatment plants (ADL). Some problems are seen as challenges, for example, urban and rural areas should be connected to each other on a sustainable basis: "*We have to try ... to integrate these urban areas surrounding the natural space*

of the Bliesgau in a way that a sustainable urban-rural-relationship can develop, so that the environmental problems of the urban areas can be balanced with the positive aspects of the rural regions. Apart from that, I don't see any urgent problems at the moment. We don't have intensive agriculture in this area, at the moment; we don't have any industries, which would be truly alarming. Insofar, I currently don't see any major challenges there" (translated according to COI).
Other subject areas as well are not considered to be environmental problems at all: "*In many places, landscape conservation is named: one has to cut back the shrub invasion on the hillsides. But that is what I don't really consider to be a veritable environmental problem … on the level of biotic environmental protection or the metabolism of human beings; it's an aesthetical question which I wouldn't rate to be an environmental problem*" (translated according to ADL).

Even more optimistic are the evaluations which are made by the institutions that represent agriculture in Saarland. They do not see any environmental problems in the biosphere (3AGC). For decades, environmentally compatible agriculture close to nature has been carried out. The structuring for the agrarian use in this area is in parts topographically pre-defined. The farmers operate in a very sustainable way because their agricultural businesses are organised to be passed on to the next generation. No intensive agriculture is carried out throughout the entire region. From an economic perspective, this is deemed too extensive because the existing potential of this area is not made full use of (AGC). Two of the experts even think that a larger area should be dedicated to agriculture to use it for food production and the cultivation of energy crops (2AGC):

"*I always speak from the perspective of agriculture. … From our point of view, I don't see any environmental problems (in the Bliesgau). No, for us the situation is perfectly alright*" (translated according to AGC).

"*The landscape there is so wonderful that one has to cut back hedges, for example, and to cultivate the landscape instead of (conducting) nature protection even further*" (translated according to AGC).

After all, the maintenance of potential seems to be a good solution of how not to make the environmental situation any worse: "*Especially for the region, it is important to maintain this richly structured landscape. With the extensive use of grasslands, with the many interspersed hedges, the bushes and the forest islands which still exist there. If agriculture was intensified, that would surely be the greatest danger. If, for example, mono-cultures could spread there, that would be a problem. Then, I think, concerning tourism, the region is still not intensively visited as this could produce larger problems at the moment*" (translated according to COI).

Therefore, in summary the opinions concerning the general environmental situation and the essential environmental problems in Saarland and in the Bliesgau, as well as the things which are worthy of improvement, depend very much on the respective actor. The following parts of the article are meant to investigate this differentiation.

6.2 Change of environmental conditions in the Bliesgau

The opinions concerning the regional environmental situation of the Biosphere Reserve Bliesgau in the last decade differ very much from each other and they are not significant, neither for the supporters, nor for the opponents of the designation of the Bliesgau as a UNESCO biosphere reserve. Thus, both groups refer to deterioration as well as to an improvement of the ecological situation in the case study region.

The positive development is, on the one hand, connected to the good potentials which exist in the region and, on the other hand, to the committed population. Thus, the authorities and the volunteers did everything to advance this positive development (COI, ADL). Therefore, raising awareness concerning the relevance of this topic also contributed to improving the ecological situation in the case study region (COI). A positive example for this is the establishment of alternative energies, though a conclusive concept has not yet been developed (COI). Referring to its potential, there are many protected and intact biotopes (ADL). Apart from that, measures of technical environmental protection, such as the connecting communities to sewage water treatment plants, the installation of filters in industrial plants, as well as a moderate drinking water policy, have been praised (2AGC and ADL). An improvement of the environmental situation in the region is recognized in the general structural change. The change of the industrial to the post-industrial society, which is accompanied by a decline of the emissions due to the outsourcing of industrial locations, is attributed a positive role in this development in the case study region (ADL).

A deterioration of the environmental situation has been detected with regard to the declining number of individual forms of usage, especially one on a small-scale. Serious negative changes in terms of scrub invasion resulted from the disuse of open land zones, in particular in the southern part of the biosphere reserve. Further negative developments were attributed to a settlement policy which is getting out of hand (COI). Moreover, an aggravation of the agricultural situation as a consequence of the designation as a UNESCO biosphere reserve is suspected because the designation is connected with additional regulations, as well as regional conditions and legal regulations and is seen as a restriction of their activity by the local farmers (AGL).

In summary, it can be stated that a tendentious deterioration of the environmental situation has been generally referred to, whereas especially the change of consciousness in the area of sustainability was considered to be one of the most important approaches for improvement: "*The environmental situation has been getting worse in the last ten years and only tendencies are perceptible which reduce these deteriorations. We cannot talk about a turning back, about a positive development of the situation by now*" (translated according to COI).

The contemplated suggestions for improvement are also connected to the topic of sustainability. The political decision makers should function as role models, they are demanded to make decisions subject to sustainability. Furthermore, the individuals have to be conscious that every action will influence the changes of the region. Therefore, there is great strength in the educational mission for children and adults (COI, ADL).

Further measures for the improvement of the regional environmental situation would be: extension of public transport, sustainable treatment of resources, more extensive farming and specific controlling of streams of visitors. However, future changes should be based on clear, sustainable concepts (2ADL and COI).

From the agricultural perspective, the potential of the area with regard to production has still not yet been entirely exploited. It is difficult for them to judge whether the environmental situation has been improved by the extensive form of cultivation. Furthermore, even intensifying farming activities would not worsen the environmental situation (AGC).

In general, the majority of the respondents demand the promotion of environmental awareness and a change of the population's habits of using public transport. Especially the latter will not be easy to implement: "*This is an infringement of personal freedom which people do not accept. But it would be a contribution to reduce CO_2 emissions*" (translated according to AGC).

6.3 Environmental capital and regional development

Environment and nature protection as well as a sustainable treatment of resources represent central topics in discussions about the regional development of the Bliesgau. This can be seen in the denotation of the case study region as biosphere Bliesgau and in its international designation as a UNESCO biosphere reserve on 26 May 2009 (2ADL, COI and AGC). Moreover, some of the experts demand an overall concept which considers every pillar of sustainability (ecology, economy and social issues) (2COI and 2ADL).

From the agricultural point of view, these topics are – on the one hand - deemed beneficial for a positive development of the region because they persuade the population to deal with and to identify themselves more closely with the region. On the other hand, these topics are seen to be obstructive "*because they signify additional tasks and increase production costs" (AGC).*

The representatives of agriculture associate environment and nature protection as well as a sustainable treatment of resources with more regulations and additional laws which in turn increase production costs (AGC). Likewise, there are also negative comments among the population (COI), whereas the political decision makers have a very positive attitude towards these topics (COI and ADL).

Altogether, a conflict of interests cannot be identified between a balanced economic development and an adequate ecological evolvement (COI and ADL): "*It is necessary to ecologically capitalise on the natural potentials ... and insofar, I don't see any of the much-invoked antagonisms of ecology and economy, especially not in the Bliesgau region*" (translated according to ADL).

In fact, biosphere reserves in particular have the function and the task to connect nature conservation with economic effects (ADL).

From the agricultural perspective, a sustainable use of environmental resources is not sufficiently taken into consideration on the regional level (2AGC). In this context, agriculture should be supported even more intensively: "*When I consider this from the agricultural perspective, then it is important for us to have green plants; that the areas are being cultivated because then we binding of CO_2 have on the one hand and oxygen production on the other hand and these incentives are generally supported in Saarland by specific programmes and it's not necessary to treat the biosphere area separately*" (translated according to AGC).

Regional promotion programmes are missing; the means of which would be on the regional level and could be distributed from there (AGC).

However, there are critical voices which state that too much is invested in the promotion of traditional agriculture and less in organic farming. Thereby, some projects should be critically scrutinized as to whether they really promote sustainable use and also specific areas individually (COI). The statement of another expert clearly defines this criticism and complains about the short life of promoted projects, which are not financially sustainable after the support stops: "*Personally, I'm critical indeed for some parts, because many projects run as long as they're promoted and the sustainability of many state-sponsored model projects is often very little. ... I worked for a relatively long time in the topic field of LEADER. There is definitely a lot being promoted which is of limited sustainability*" (translated according to ADL).

Nevertheless, some experts think that the financial support with regard to sustainable use of environmental resources is not enough. The following points are criticized in particular: "*Firstly, I think that there isn't enough support and secondly, I also believe that the right things are not being promoted. ... In my opinion, we should try to find really integrated solutions. Solutions that don't support single short-term projects but clear strategies in the regions. There I do see the advantage of*

regional development: that you try to set up regions which form a critical mass on the one hand, but … to develop small-scale projects … and strategies that can be realized on the other hand" (translated according to COI).

Therefore, a sustainable use of resources in the sense of a holistic approach across different areas and sectors would have to be improved and the funding programmes would have to be adjusted accordingly. Likewise, the networking of the individual funding programmes should be improved and the support of renewable energies in the region would have to be extended so that the funding would be connected with a regional concept (ADL). Finally, the experts wish for a clear representation of the existing funding structures for the private as well as for the public sector: "*I think it would be helpful for a lot of people if the whole range of funding would be put together in a manageable form … and be presented in a better way to citizens …, businesses, but also to local authorities … so that (these promotions) can be used more effectively*" (translated according to ADL).

Except for the representatives of agriculture, the experts concur that a stronger economic orientation towards sustainable forms of economy should be advanced in the case study region. From the agricultural point of view, organic farming should not gain greater economic significance because production nowadays is approximately as high as the market needs (AGC). Only the expansion of renewable energies, which, according to the representatives of agriculture, should be advanced further represents an exception (2AGC).

6.4 Conservation versus exploitation

In the course of the expert interviews, it was discussed whether the protection of environmental resources is an obstacle to their sustainable use. Six experts responded to the question with 'no' (3COI, 2ADL and AGC). The opinions did not depend on the experts' positive or negative attitude towards the biosphere reserve. Though from the agricultural viewpoint there is generally no contradiction between sustainable use and the protection of environmental resources due to their sustainable working methods.

The experts, who see conflicts between conservation and exploitation (3ADL, 2AGC and COI) plead at the same time for protecting nature, which should not be too extreme, and a balanced sustainable use of environmental resources because protective measures, which are too strict, always affect sustainable use (2AGC and ADL). Thus, for example, the protection of the cultural landscape and the cultivation of biomass are mutually exclusive. However, if both is carried out moderately, compromises could be achieved which take both protection and usage into consideration (ADL). The same applies to an absolute prohibition of using the forest area concerning wood exploitation or hunting (2AGC).

Furthermore, the experts demand setting an emphasis on good concepts which consider both aspects to reduce the existing goal conflicts (ADL). To this, one expert says: "*I believe that this is today's most exciting task of modern environmental management, … to establish the sustainable use (of environmental resources) …, to direct it, to manage it in a way that the protection of the environment is guaranteed at the same time*" (translated according to ADL).

Then, the question arises whether enough is done from the part of regional planning to assure nature protection on the one hand and, on the other hand, to promote a sustainable use of resources. In this case again, the opinions were split in half, whereas the agricultural representatives very clearly did not expect any further conditions concerning regional planning because this would entail additional utilisation restrictions. Thus, the existing regulations are considered to be too general and insufficient-

ly geared towards the concerns of each region (3AGC). Other respondents do not see any deficits from the viewpoint of their own projects (2ADL) or they refer to the Regional Development Plan (LEP) for Saarland, which – amongst others – assures environmental protection by highlighting the protection of areas with nature and free space protection or by naming priority zones for wind power generation. However, deficits in this field generally depend on whether environmental protection as landscape or climate protection is understood in a passive or active sense. Basically, the LEP is balanced and up-to-date concerning these interests, though its execution strongly depends on political decisions (ADL).

However, all representatives of companies and other institutions as well as some experts from the administrative level think that regional planning does not do enough for environmental protection and a sustainable use of resources (4COI and 2ADL).

"*Let me be perfectly clear: there isn't enough being done! Especially not for the region as a whole*" (translated according to COI). This statement is explained by the expert by stating that many decisions depend on day to day politics, legislative periods, competitiveness among the local authorities and on party affiliation and that decision makers think in periods of time, which are too small, and not on a regional scale (COI). The structure of regional planning itself and therefore the problems to translate for example the LEADER programme into practice were criticized (COI). Another key actor demands emphasizing clear priorities for regional planning and creating sustainable concepts (land-use planning and development planning) which would arise rather from regional than from municipal or local thinking (ADL). Furthermore, some plans need to be revised due to the latest developments (e.g. with regard to wind energy) and a framework concept for the UNESCO biosphere reserve has to be drawn up (ADL).

To what extent the region's environmental potential is endangered by overly intensive use is judged differently by the experts. Thus, the agricultural representatives do not see any threat in the Bliesgau region because there is no intensive use in this area according to them (2AGC). Furthermore, due to the sustainable use and the high number of conditions and regulations (e.g. fertilizer regulations, cross-compliance regulations for single payment scheme), there could not be a threat caused by an intensification of use (AGC). Whereas only two other experts (2ADL) also responded with a clear 'no' (due to regulated hunting and riding zones, a population density, which is no longer increasing, and no need and no financial viability for further infrastructure), the other key actors had a different view (4COI and 3ADL). Thereby, various kinds of danger are perceived:

- land cultivation which is too intensive and commercial (increasing energy costs also play a role which would lead to monocultures and an overutilization of soil) (4COI and 2ADL),
- too much or wrongly directed tourism (4COI and 2ADL),
- use of wind energy, which is too intensive, so that it would affect birds and bats (ADL),
- utilization, which is too intensive, in the fields of business, industry, traffic or settlement (ADL).

Whereas a positive development is perceived in the sector of forestry, ceasing to use environmental potentials is seen as another problem of the case study region. Thus, landscape and living spaces always need a specific degree of utilization. However, this utilization could cease due to the decline in farming so that environmental resources could also be affected. A typical example for a negative effect of disuse is shrub invasion. Though tourism could affect the region's environmental potentials, an intensive touristic utilization of the region with increasing infrastructure has to be gaged as rather unrealistic.

6.5 Bliesgau biosphere and its designation as a UNESCO Biosphere Reserve

The designation of the Bliesgau biosphere as a UNESCO biosphere reserve (on 26 May 2009) doubtlessly represents a re-evaluation of the case study region which is at the same time connected to further conditions regarding nature protection. The additional regulations cause cuts in agricultural activities which lead to conflicts. After presenting several conflicts and opportunities concerning the general environmental situation above, the emphasis is now put on the effects of the Biosphere Reserve Bliesgau and the UNESCO designation on nature protection in the case study region and in Saarland generally.

At first, the general potentials are presented which are offered to the Bliesgau by its status of a UNESCO biosphere reserve.

According to the experts, especially landscape and nature protection potentials derive from the criteria defined by the UNESCO. Moreover, the designation can have positive effects on nature tourism. Thus, the biosphere reserve could benefit from the fact that short trips are very fashionable at the moment and therefore cause additional positive effects for the region's economy. The biosphere has the excellent basic potential which is formed by the beech forests on variegated sandstone soil with weathered rock formations, the river Blies with its pasture landscapes, as well as the dry grasslands with orchids and numerous insects. Thus, the regional development is boosted by the UNESCO designation and the duties resulting from it. The rating does not only represent an increase in value and a marketing element for tourism, in a further step, it could also benefit regional producers who could market their own products (3COI, 2AGC and 2ADL). House building in a way which is typical for the region would also be a matter (ADL). The conditions resulting from the designation are considered to be positive in view of the targeted opportunities.

One respondent sees the potential within the educational mission of biosphere reserves: "*Biosphere reserves have a clear educational mission. ... I think that education and information could be improved considerably here, by regional activities, but also by a stronger presence in national media and materials*" (translated according to COI).

Whereas all three groups of experts demand the development of a stringent concept (3COI, 2AGC and ADL) the potentials are not yet being used to a great extent and will be fully available after fulfilling the guidelines (COI), the representatives of agriculture affirm their opinion as follows: "*This attribute UNESCO will surely have an advertising effect, but I don't see any other potential – especially for the agricultural sector – coming from that. Until now, we have been told that this designation as a biosphere reserve, the UNESCO designation so to say, doesn't entail any financial advantage*"' (translated according to AGC).

Moreover, the majority of the experts see an improvement of the ecological situation in Saarland in connection with the Biosphere Reserve Bliesgau to be possible. However, whether this will really happen, they cannot assess. Especially by developing strategies and projects eligible for funding, but also by raising awareness for the need of protecting the region's natural attractiveness protection, the biosphere reserve can have a positive effect on the ecological situation in Saarland. The targeted exemplarity of the region does play a major role for this (3COI and 2ADL). From the agricultural point of view, the biosphere will not have any effects on the rest of Saarland (3AGC). "*I think that almost all the other parts of Saarland could have been used to designate areas ... as a biosphere reserve*" (translated according to AGC).

The following examples concern the contribution of the Bliesgau biosphere to the promotion of nature protection:

Positive examples:

- Strict designation of core and buffer zones, as well as exertion of influence in transition zones (2COI and ADL),
- Landscape protection measures in general (2ADL and COI),
- Considered guidance of visitors (2ADL),
- Protection of species (Marsh Fritillary (*Euphydryas aurinia),* orchid meadows) (COI),
- 'Umwelt- und Friedenstag' (Environment and Peace Day) (COI),
- The nature protection project 'Auf der Lohe' (AGC).

Negative examples:

- Restrictions for farmers and hunters (2ADL),
- Natura 2000 areas (2AGC),
- New access roads in Blieskastel (bridge and roundabout) (COI),
- The former customs train station in Limbach-Altstadt (ADL).

Furthermore, one expert stated that the biosphere reserve has not yet had a positive influence because nature protection has had a negative image in the region until now. In doing so, the respondent welcomed the UNESCO designation because it demands nature protection (ADL). Another respondent shared this opinion and additionally criticised that until now, nature protection has played a minor role in the management of the biosphere. According to him, the reasons for this are the lack of accordingly trained staff and insufficient competences because this field is in the responsibility of the Ministry of Environment. Therefore, the biosphere's administrative body has been involved in a relatively low number of projects which has to be changed (ADL).

Concerning the climate change and extinction of species with regard to the biosphere reserve, not all of the experts think that the biosphere reserve will help to shift these topics more into the centre of regional attention. One expert worries that this will rather not be the case unless the regional management and the biosphere's administrative body will involve these topics more. Although there have not been any successes to that effect in the case study region yet, it would also be too early to talk about deficits (COI).

Other experts definitely see potentials in the biosphere reserve to regard climate change and extinction of species in the case study region more closely. These potentials are identified in particular in the sensitisation of the local population by education and public relations (2COI and ADL), commercialization of regional products (COI), renewable energies (COI) and other projects on this topic (ADL). For the purpose of completeness, the opposing opinion of the agricultural representatives is presented here. The respondents concerned cannot imagine that the biosphere reserve will contribute to put the discussion on climate change and extinction of species more into the centre of regional attention.

"*I don't see any deficits now, because I judge the situation, just like it is at the moment, to be good. We've got other areas, where certain animals have been resettled …. I have doubts concerning these areas. If certain animals withdraw, then this has reasons unless they (disappear) quickly, by human intervention, then you can get them back again. But otherwise, this is a development which has to be accepted and tolerated. … Of course, you have to be careful that there (aren't) any negative effects,*

but from the agricultural point of view, I don't worry about them – regardless of whether there is a biosphere reserve or not" (translated according to AGC).

The development of gentle tourism, sustainable agriculture and forestry, as well as regional commercialization of agricultural production in connection with the Biosphere Reserve Bliesgau is represented more positively. Initiatives or regional products, such as 'Lebensadern Wege" (*Ways as life veins*), Bliesgau-Molkerei (*Bliesgau dairy*), Bliesgau-Regal (*Bliesgau shelf*), Bliesgau Genuss e.V. (*Bliesgau indulgence, registered association*), Bliesgau Kiste (*Bliesgau box*), Bliesgau apple juice, Bliesgau bread were named as positive examples. Even though not all of the possibilities have yet been exploited (amongst other things, because of the restrictive funding environment), the interviewees support these areas. However, from the agricultural standpoint, these initiatives are being dismissed. The statements of the agricultural representatives are rejecting, even with regard to regional commercialization of agricultural products: "*This dairy could be located in any other part of our small state. … We have a production of apple juice in Merzig which enjoys great renown nationwide … and even beyond the German borders and because of this apple juice from Merzig will always be more popular than apple juice from the Bliesgau. And for our potential, which we have here directly, by one million inhabitants, in my opinion, it doesn't make sense to build up additional rival products. Hence, these possibilities of regional marketing of agricultural products will not differ from the other regions here in Saarland*" (translated according to AGC).

In fact, these developments are considered to be threats, especially tourism, which could claim areas which are used by farmers and hunters (2AGC).

6.6 The organization and publicity activities of the Biosphere Reserve Bliesgau

In chapter 5, the new organization of the Biosphere Reserve Bliesgau management was presented and the departments of the biosphere's administrative body were introduced. In the following, the general organization and the activities of the Biosphere Reserve Bliesgau from the experts' perspective will be presented.

The opinions of the experts about the management of the biosphere's administrative body are divided. Hence, one of the experts thinks that the field should be attached to the Ministry of Environment to control the decision processes from there because at the moment*: "decisions are subject to political dictation and to the purpose. This is obvious" (*translated according to *COI).*

Other experts think that the management would basically work better now that there is an experienced leader[1] of the biosphere's administrative body. However, in their opinion, the administrative body has problems concerning its self-discovery with regard to the regional actors, as well as with regard to its political orientation (3AGC and 2ADL). The situation could be improved if the people involved put personal and political profiling aside. Additionally, the management would have to be equipped with enough staff (ADL). Other experts as well would welcome an increase in staff in the biosphere's administrative body (2ADL and COI) because, even though the efforts and the commitment are great, the measures undertaken should not wholly depend on volunteers (COI). The quality of the management is assessed with regard to the networking of the actors in the biosphere reserve, which is defined as very important (COI).

1 Walter Kemkes has been leader of the biosphere's administrative body since July 2010.

The representatives of agriculture criticise that they are not intensively involved into networking. The communication takes place on the district level where they have contact to the district mayor. According to them, networking on the state level has deficits with regard to planning future projects and LEADER measures (AGC). Moreover, they complain about the high number of actors involved in the biosphere reserve networking (2AGC): "*There are too many actors who have to schedule too many appointments and they want to be in on everything, too. It doesn't work out like this*" (translated according to AGC).

Another expert appreciates the fact that there are so many actors from different fields in the Bliesgau, but at the same time he states that it has not yet been possible to build up a network connected to the biosphere (COI). Other respondents also believe that the networking does not suffice and they demand more involved actors, a targeted distribution of tasks and improved internal communication (e.g. among the LEADER regions), but also with regard to the population in the Bliesgau (3ADL and 2COI).

The activities of the biosphere reserve are strongly combined with the public relations of the biosphere's administrative body. It is described to be positive by the experts. Especially the brochures and flyers, events of the biosphere reserve, the presence at trade fairs and press work are praised (2COI). One expert summarises the mission of the biosphere's public relations: "*(It is important) to make (people) in the region aware of the interesting things which are there, to create the opportunities not only to visit nature protection areas but also to represent them exemplarily: 'How characteristic is this landscape?' (It is also important) to enable those, who come to the region, to walk through the landscape with their eyes open. And this concerns all these things: village structures, old farm houses, the old forms of economy which used to be here, but also meadows with scattered fruit trees to the specific things, such as nature protection areas, orchid meadows, etc.*" (translated according to COI).

Deficits are perceived due to insufficient information with regard to the biosphere reserve (COI), but also concerning the term of 'sustainable development' (COI), equipment of staff (ADL) and the design of the website (COI). In these areas, the experts also see possibilities for improvement, such as publishing a magazine on the biosphere (COI) or producing a film about it (2ADL).

The agricultural representatives consider the public relations work of the biosphere's administrative body to be less praiseworthy because it does not supply enough information to the population (2AGC; here also COI). Thus, no PR is done for the biosphere reserve with regard to agriculture (3AGC) and PR for farmers is only provided for information on restrictions on land use, regional marketing or funding possibilities (2AGC).

Concerning the Biosphere Reserve Bliesgau's contribution to environmental education, the cooperation with the Ecological Schullandheim Gersheim 'Spohns Haus' (state-run kind of youth hostel in the country used for school trips) (4ADL, 3AGC and 3COI) within the framework of the Education for Sustainable Development concept, as well as with kindergartens and primary schools (COI and ADL) has been praised.

Although measures of environmental education in connection to the UNESCO designation are expected in the case study region (3ADL), environmental education is also perceived to have deficits. Especially the low number of measures at regional schools and in local adult education are criticised (2AGC, 2COI and ADL).

Furthermore a stronger involvement of science in the case study region is demanded. Likewise, Saarland University should be included into environmental education (ADL).

6.7 Summary of the environmental conflicts in the Biosphere Reserve Bliesgau

In the following chapter the existing regional potentials for conflicts between environment and nature protection on the one side and the utilization of natural resources on the other will be summarised and finalised. As it can be seen in earlier statements, not every expert has identified such a conflict in the case study region. The general opinions on the topic were presented in chapter 6.4. In conclusion, the following threats, which trigger conflicts, have been named by the regional actors:

- regulations for agricultural cultivation (3AGC);
- the designation of Fauna Flora Habitat (FFH) and Natura 2000 areas, as well as other nature protection areas (3AGC);
- wind power generation (3ADL);
- farming, which is too intensive or geared towards monocultures (2COI);
- genetically modified products (2ADL);
- the photovoltaic plant in Bliesransbach (2ADL);
- overuse of regenerative energies (ADL);
- too much uncontrolled settlement (COI);
- tourism (COI);
- a biogas plant project (COI);
- pollutant emissions in the community of Kirkel (ADL);
- effects of the natural gas power station in Hambach (Lorraine, France) (ADL).

Depending on the difficulty and the extent of the [individual] projects, different actors are involved in the conflicts, however no globally active, international companies (except UNESCO). According to the experts, global actors do not often play a role because they try to solve conflicts on a regional level (2ADL, 2COI and AGC). Except for the representatives of agriculture, who describe the necessity of applying EU regulations as a kind of pretext (2AGC), the other experts do not know about concrete conflict situations in which regional actors turn to higher organisations or institutions. Altogether, the following actors involved in the conflicts were named:

- Bund für Umwelt und Naturschutz Deutschland (BUND) (3ADL and COI);
- Naturschutzbund Deutschland e.V. (NABU) (3ADL and COI) ;
- local actors and small clubs, such as the association of beekeepers or fishing clubs (2COI);
- actors on the federal and EU level in general (2AGC);
- UNESCO (ADL);
- Ministry of the Environment (COI).

The position of agriculture becomes clear in the following statements:

"*Well, this regional potential of conflict evolves from the fact that additional regulations are made for cultivation. ... If, for example, there are additional conditions for the Flora Fauna Habitats in the biosphere reserve in the future, for example a ban of ploughing up grassland, for example a restriction of corn cultivation, this will have consequences and this will create a conflict*" (translated according to AGC).

"*Conflicts are caused by protected areas and also partly by nature protection areas, which we ... already mark as lost areas, from an agricultural point of view. ... What is primarily disturbing us at the moment, are the FFH and Natura 2000 areas, which, on the one hand, cover larger agricultural*

areas and which, on the other hand, are owned by private individuals. And in my opinion, what is presented there, these are elements of an offence, which equals compulsory purchase. This is a relatively big conflict, which needs to be tackled" (translated according to AGC).

"*The environmental associations do actually look for support on the federal or EU level. The areas have been reported to the EU and now (the officials on the spot) hide a bit behind the demands of the EU. The (whole) story is put upside down*" (translated according to AGC).

7 Conclusions

In conclusion, it can be stated that generally two different opinions predominate concerning the environmental situation and the environmental potentials, as well as environmental protection and the sustainable use of resources in the case study region, which are both connected to the latter. On the one hand, the experts representing agriculture think that the environmental situation is very stable and they only see threats in land use restrictions. On the other hand, the other experts (representatives of the administrative level as well as of companies and other institutions) think that especially intensive farming or one which is geared towards monocultures essentially affects the environment. These respondents concur that a stronger economic orientation towards sustainable forms of economy, i.e. organic farming, gentle tourism, sustainable forest management, renewable energies, the initiation of regional economic cycles in the sense of an 'eco-economy' should be advanced in the case study region. Furthermore, ecological interests and thus the idea of an eco-economy have been highlighted explicitly in Saarland: "For the interest of environmental protection … the share of areas for organic farming has to be increased step-by-step. The use of fertilisers and pesticides has to be reduced to a reasonable extent" (translated according to Saarland – Ministerium für Umwelt 2004, p. 15).

The designation of the Bliesgau as a UNESCO biosphere reserve represents an enormous re-evaluation of the case study region. However, this designation is connected to many obligations, which, on the one hand, represent conditions and restrictions for certain actors and which, on the other hand, offer possibilities to other key personalities to come closer to their objectives concerning nature protection. Thus, the biosphere's administrative body has been affirmed in its activities and encouraged to further activities in terms of sustainability. The general public doubtlessly has great expectations of the biosphere's administrative body, which range from educational work for the population, a faultlessly working management to successful networking and tasks of environmental education.

The identified problems arising from the UNESCO designation of the Biosphere Reserve Bliesgau follow from a significant lack of information within the region; local people should be informed and counselled, especially as there is potential for conflict in the Bliesgau biosphere. Wind energy, for example, subjectively destroys the natural landscape. The region will deal with these aspects for a long time. There will be a contradiction, because on the one hand the population wants renewable energy, but on the other hand refuses the concrete construction of these facilities. A problem with the biogas plants is another example for a lack of information for the regional population. Therefore the most important way of playing down the conflicts is by informing locals e.g. on the basis of informative meetings where fears of the population concerning protected areas are taken very seriously and new concepts for this issue are presented.

The results from the implementation of the Biosphere Reserve Bliesgau can be used for future

implementations of biosphere reserves to avoid conflict potential and to be responsive for the fears of special (interest) groups.

References

BERKEL, K. (1997): Konflikttraining. Konflikte verstehen, analysieren, bewältigen, Heidelberg (Arbeitshefte für Führungspsychologie, Band 15).

BIOSPHÄRENVEREIN BLIESGAU e.V. (ed.) (n.d.): Karte, Verordnung, Naturschutzgebiete http://www.biosphaere-bliesgau.eu/index.php/de/das-biosphaerenreservat/karte-verordnung-natsg (15.11.2010).

BIOSPHÄRENZWECKVERBAND (ed.) (2009): Organigramm der Geschäftsstelle des Biosphärenzweckverbandes (gültig ab 1.11.2009), Blieskastel.

BOWLER, I. R., C. R. BRYANT and C. COCKLIN (eds.) (2002): The sustainability of rural systems: geographical interpretations. Dordrecht.

BRODDA, Y. (2002): Biosphärenreservat im Südharz – eine Chance für die Region? In: Mose, I. and N. Weixlbaumer (eds.): Naturschutz: Großschutzgebiete und Regionalentwicklung (Naturschutz und Freizeitgesellschaft, Bd. 5). Sankt Augustin.

BROWN, L. R. (2001): Eco-Economy: Building an Economy for the Earth. New York.

DERREG CONSORTIUM (2008): Developing Europe's Rural Regions in the Era of Globalization: An Interpretative Model for Better Anticipating and Responding to Challenges for Regional Development in an Evolving International Context (Annex I – 'Description of Work'). Aberystwyth et al.

ERDMANN, K.-H., H.-R. BORK and K. GRUNEWALD (eds.) (1998): Geographie und Naturschutz, Beiträge zu einer naturverträglichen Entwicklung, MAB-Mitteilungen 45. Bonn.

GLASL, F. (1999): Konfliktmanagement: Ein Handbuch für Führungskräfte, Beraterinnen und Berater. Bern/Stuttgart.

HUSSONG, H. (2006): Auf dem Weg zur Biosphäre Bliesgau. Der Einfluss regionaler Akteure auf den Prozess der Implementierung eines Biosphärenreservates im Bliesgau. http://www.iflis.de/resources/Bd1_Bliesgau.pdf (22.11.2010).

KLEIN, T. (1996): Großschutzgebiete und regionalwirtschaftliche Entwicklung. Ansatzpunkte zur Minimierung regionalpolitischer Konflikte. Forschungsberichte des Niedersächsischen Instituts für Wirtschaftsforschung e.V. 21. Hannover

KRISZAN, M. et al. (2010): Literature and statistical overview of case study regions. Subtask: Environmental capital and sustainable rural development. Unpublished.

KÜHNE, O. (2003): Biosphärenreservate – zwischen Konstruktion und Restriktion. Geoid 8(1), pp. 25-32.

LATTWEIN, R. (2009): Rettet die Biosphäre. Umweltmagazin Saar 3, pp. 26-29.

LOKALE AKTIONSGRUPPE (LAG) BIOSPHÄRENRESERVAT BLIESGAU (ed.) (2007):Regionales Entwicklungskonzept. Plan zur Entwicklung des ländlichen Raums im Saarland 2007-2013. Blieskastel.

MOSE, I. (2009): Akzeptanz, Einstellung und Image als Einflussgrößen von Großschutzgebieten. Einige theoretische und methodische Vorüberlegungen. In: Mose, I. (ed.): Wahrnehmung und Akzeptanz von Großschutzgebieten (Wahrnehmungsgeographische Studien, Bd. 25). Oldenburg.

ROBINSON, G. M. (ed.) (2008): Sustainable Rural Systems. Sustainable Agriculture and Rural Communities. Aldershot and Burlington.

UNESCO (ed.) (1972): International Co-ordinating Council of the Programme on Man and the Biosphere (MAB). First Session. MAB Report Series 15.

Saarland – der Chef der Staatskanzlei des Saarlandes (ed.) (2006): Landesentwicklungsplan, Teilabschnitt „Siedlung“. Amtsblatt des Saarlandes (29) vom 14. Juli 2006, pp. 963-1008.

Saarland – Ministerium für Umwelt (ed.) (2004): Landesentwicklungsplan, Teilabschnitt „Umwelt (Vorsorge für Flächennutzung, Umweltschutz und Infrastruktur)” Teil A: Textliche Festlegungen vom 13. Juli 2004. Saarbrücken.

Saarland – Ministerium für Umwelt, Energie und Verkehr (ed.) (2009): Biosphäre Bliesgau wurde UNESCO-Biosphärenreservat. http://www.saarland.de/SID-3E724395-25BF4C22/53491.htm (28.05.2009).

Saarland – Ministerium für Umwelt, Energie und Verkehr (ed.) (n.d.): Biosphärenregion Bliesgau. Außengrenze und Zonierung. http://www.saarland.de/15826.htm.

Sahler, G. and H.-J. Schreiber (n.d.): Einführung. In: Deutsches Nationalkomitee für das UNESCO Programm „Der Mensch und die Biosphäre“ (MAB) (ed.): Kriterien für die Anerkennung und Überprüfung von Biosphärenreservaten der UNESCO in Deutschland.

Statistisches Amt Saarland (ed.) (2010): Fläche, Bevölkerung in den Gemeinden am 30.06.2010 nach Geschlecht, Einwohner je km^2 und Anteil an der Gesamtbevölkerung. http://www.saarland.de/dokumente/thema_statistik/staa_FB300610.pdf (08.11.2010).

Stoll-Kleemann, S. (2010): Der Madrid Action Plan und seine Auswirkungen auf die deutschen Biosphärenreservate. In: Europarc Deutschland e.V. (ed.): Nationale Naturlandschaften und Biodiversität – Vielfalt macht stark!, pp. 18-22.

Taurus-Institut an der Universität Trier & Kernplan Gesellschaft für Städtebau und Kommunikation mbH (2007): ILEK Bliesgau. Integriertes ländliches Entwicklungskonzept für die Region Bliesgau. Trier and Illingen.

UNESCO (ed.) (1996): Biosphere reserves: The Seville Strategy and the Statutory Framework of the World Network. UNESCO. Paris.

UNESCO (Ed.) (2010a): Deutsche UNESCO-Kommission e.V. Die Liste der UNESCO-Biosphärenreservate. http://www.unesco.de/1467.html?&L=0 (08.11.2010).

UNESCO (Ed.) (2010b): Deutsche UNESCO-Kommission e.V. Die 15 deutschen Biosphärenreservate. http://www.unesco.de/deutsche_biosphaerenreservate.html?&L=0 (08.11.2010).

Ziener, K. and C. Brandenburg (2007): Konfliktbewältigung und Konfliktprävention beim Management landschaftsbezogener Freizeit- und Erholungsaktivitäten (reviewed paper). In: Schrenk, M., V. V. Popovich and J. Benedikt (eds.): REAL CORP 007 Proceedings/Tagungsband. Vienna.

Rich in environmental capital – weak in regional development: The case of the Pomurska Region in Slovenia

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Abstract

The Pomurska region is recognized as one of Slovenia's under-developed regions. In the past mostly its predominantly rural characteristics such as the percentage of people employed in agriculture, the percentage of agricultural land as indicators for less developed regions have been outlined. Together with its border position and previously poor traffic connections, as well as unfavourable economic opportunities the region was recognized as a typical out-migration region. The regional geographic analysis reveals the region's potentials which are mostly based on the rich environmental capital. Therefore, in the regional development aspect the main long-term priorities as well as the opportunities of the region are the use of geothermal and other renewable energy sources, the development of the food industry and overall rural development as well as sustainable tourism development based on rich environmental, social and cultural capital.

1 Introduction

The Pomurska region covers an area of 133,753 hectares which is 6.6 % of the total Slovenian territory. Geographically the region is composed of two natural geographical units – the flat and fertile gravel plain (Murska ravan/Murska plain) and hilly areas of Goričko, Lendavske gorice and a part of Slovenske gorice. The Murska plain is characterized with abundant groundwater resources and agricultural land (where consequently mostly conventional agriculture is developed), a higher population density, sufficient infrastructure etc. The hilly areas are characterized with high biodiversity and a preserved cultural landscape, traditional agriculture practices and dispersed settlements which were main reasons for the establishment of Goričko Landscape park in 2004, covering 34.5 % of the region's territory.

Compared to other Slovenian regions Pomurska is historically recognized as an under-developed region. In the past mostly its predominantly rural characteristics such as the percentage of people employed in agriculture, the high share of agricultural land as indicators for a less developed region were outlined. Together with its border position (Croatia, Hungary and Austria) and previously poor traffic connections, the region was recognized as a typical out-migration region.

Although the economic relevance of agriculture in general is decreasing, the Pomurska region is still characterized as an agricultural region. On the other hand, due to its geographical position and poor transport connections the economic position of the region has deteriorated in the past, which is reflected in its low GDP per capita and the highest rate of registered unemployment in the country (around 20 % since November 2009; Employment service of Slovenia, 2011). The traffic connections were unfavorable until 2008 but with the construction of the highway the region has recently become well-connected with other Slovenian regions as well as other EU countries. Nevertheless Pomurska remains the region with the lowest economic power in Slovenia. The unfavorable economic situation is accompanied by negative population trends. The population of Pomurska has decreased considerably over the past two decades, mainly due to natural population decrease. Pomurska has the lowest annual population growth rate compared to other

regions in Slovenia. The depopulation is part of a historical trend throughout the twentieth century, which has particularly impacted the border area of Goričko with the tightening of national borders with Austria and Hungary following WWII. The demographic trend from the 1960s onwards clearly shows that the major parts of Pomurska are demographically endangered, especially the areas of Goričko and Lendavske gorice where particularly strong depopulation was observed between 1960 and 1991 (SORS 2010).

Presented economic and social situation in the region resulted in the Slovenian Government intervening in 2009 with a regional policy – the implementation of the *Law on development support to the Pomurje region in the period 2010-2015* ('Pomurje Act'). The Act was introduced when it became clear that the measures of the existing *Promotion of Balanced Regional Development Act* were unable to resolve the acute situation in the Pomurska region. After two major companies in the region (Mura; textile industry and Pomurka; food processing industry) filed for bankruptcy in 2009 and the unemployment rate rose to more than 20 %, the region was faced with a number of social issues. Following the 'Pomurje Act' the *Programme for promoting the competitiveness of the Pomurje Region 2010-2015* was launched in the beginning of 2010. Its instruments were focused in boosting the region's competitiveness by promoting investment and job creation.

The major development document *Regional development programme of the Pomurska region 2007-2013* (RDP of the Pomurska region) recognizes the 'environment and space' as one out of five main development priorities and opportunities, focusing on the improvement of water quality, the revitalization of degraded areas, the sustainable protection of strategic natural resources and cultural landscape, the establishment of an institute for sustainable development and spatial planning, permanent 'environmental' communication with the public, energy efficiency, renewable energy use and other measures supporting renewable resources use. From the regional development aspect the main long-term priorities as well as opportunities of the region are:

- the use of geothermal and other renewable energy sources;
- the development of the food industry and overall rural development;
- sustainable tourism development based on rich environmental, social and cultural capital.

2 The Pomurska region – lagging behind in development

For decades the Pomurska region has been recognized as an underdeveloped region compared with Slovenia on a whole. With its border position, previously poor traffic connections and unfavourable economic opportunities Pomurska is still a synonym for a typical out-migration region.

In past decades the employment structure was specific as well as marked by a strong orientation to the textile and food processing industries. There is still a very high percentage of people employed in agriculture (over 10 %), but lately the decrease in the number of jobs, high unemployment, an uneducated population etc. have often been exposed as the main causes for the stagnation in development.

The demographic statistics reflects 'the lagging behind situation' in the region – namely the percentage of youth (under 14 years old) is lower and the percentage of elderly people is higher than the Slovenian average (see Tab. 1). The situation has even deteriorated in last ten years. The unfavourable economic situation is therefore accompanied by negative population trends. The Pomurska region had the highest negative annual population growth rate (-4.0 ‰) in 2008. Between 1997 and 2007 the region lost about 3 % of its population; that corresponds to a decline

Tab. 1: Main demographic characteristics of Pomurska region and Slovenia

Indicator	Slovenia 2000	Pomurska region 2000	Slovenia 2008	Pomurska region 2008
Average age	38.8	39.1	41.2	42.0
Ageing index	87.8	96.8	117.1	125.5
% of people younger than 14	15.9	15.3	13.9	13.2
% of people older than 65	16.3	17.3	20.0	20.7
Natural change of population	-408	-330	3,509	-279
Migration change (international - foreigners)	2,675	-124	18,584	59
Migration change (internal - regional)	0	-46	0	-664
Total increase of population	2,193	-500	22,093	-884

Source: Statistical Office of the Republic of Slovenia, 2011

from 125,722 inhabitants in 1997 to 121,824 in 2007. Only in 2008 the negative migration change (migration to other regions of Slovenia) was -664 inhabitants.

Nowadays a slightly positive tendency in the employment situation can be observed (see Fig. 1). The employment structure tends to higher percentage of employees in services during the period of investigation. There were 41,780 employed in the service industry in 2005, whereas in 2008 their number amounted to 42,758 (+ 2.3 %) (SORS 2010). In this period the percentage of unemployment also dropped to 13.2 % (in Slovenia just 7 %). Nevertheless, the unemployment rate fell from 13.2 % in the mentioned year to 20.4 % in 2009, when two large companies in the region went bankrupt.

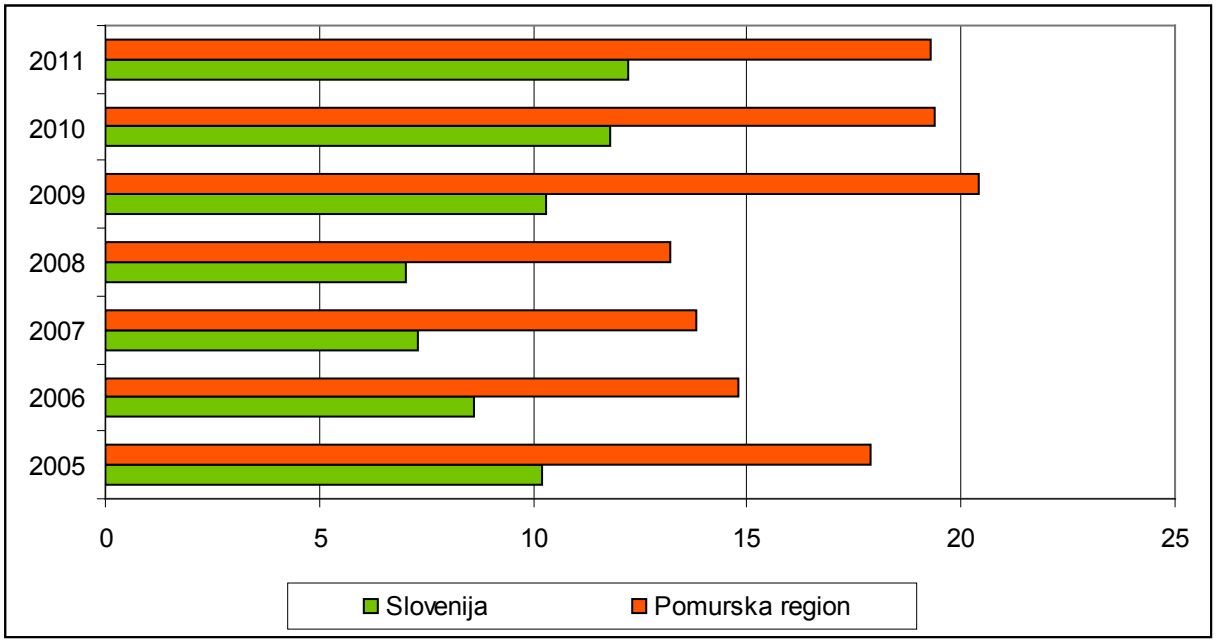


Fig. 1: Unemployment rate (in %) in Pomurska region and Slovenia in the period from 2005 to 2011

Source: Employment Service of Slovenia, 2011

The textile factory Mura and the food processing plant Pomurka mostly employed workers with a low education so this unfavourable situation is strongly connected with the level of education. Poor educational qualifications of the region's population is seen in the educational structure; over 30 % of the population still only has a basic education (primary school) (see Fig. 2). On the other hand the percentage of people with a higher education just reached 10 % in 2006 and since then has been slowly increasing.

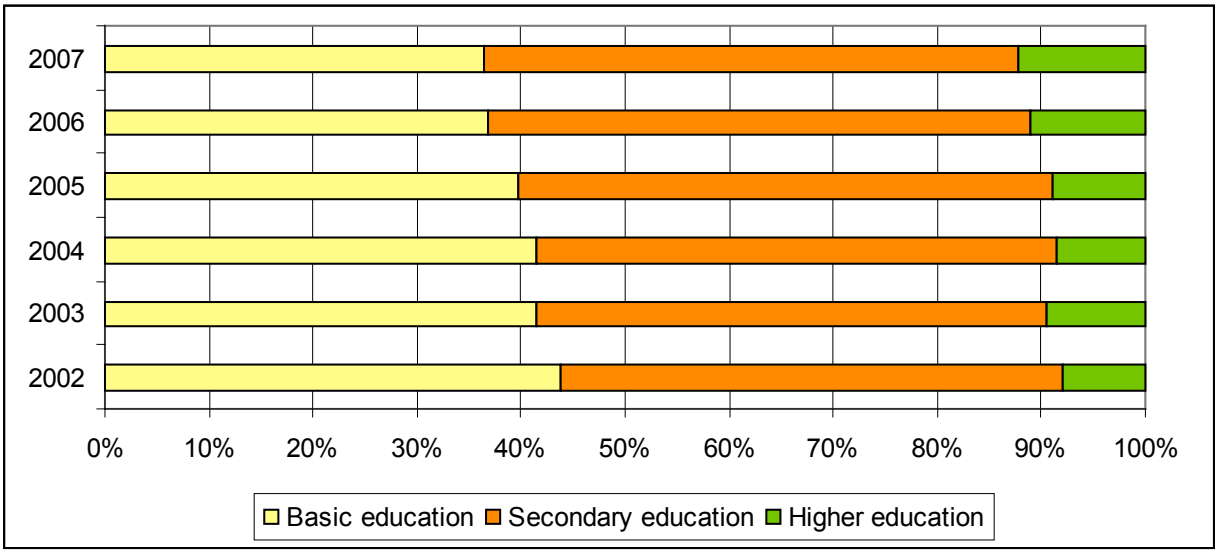


Fig. 2: Educational qualification of population in the Pomurska region

Source: Statistical Office of the Republic of Slovenia, 2011

The overall situation is reflected in the regional development: The gross domestic product per capita is the lowest in the country and the employment structure continues to show a strong orientation towards the agricultural sector (employment in services remains under 50 %) (see Tab. 2.).

Tab. 2: Some advantages and deficiencies of Pomurska region compared to Slovenia

Indicator	Slovenia	Pomurska region
% of organic farms (2011)[2]	3.0	0.7
% of employees in agriculture (2007)[1]	4.6	13.6
% of employees in industry (2007)[1]	37.7	39.6
% of employees services (2007)[1]	57.7	46.8
Gross domestic product per capita in EUR (2008)[1]	18,450	11,986

Source: 1 - Statistical Office of the Republic of Slovenia, 2011
2 - Ministry of Agriculture, Forestry and Food, 2011

But different questions arise – do we have to valorize this situation as deficient? Does the strong orientation and dependency on agriculture (land) necessarily mean a weakness from the regional development aspect?

3 Agriculture – in the function of environmental preservation and in food production self-sufficiency

The region itself is recognized as the most agricultural region in Slovenia. Fertile soils, a continental climate and flat land provide good conditions for field crops (also called 'the granary of Slovenia') farming and mixed cropping, which is a dominant activity of the agricultural holdings in the region. In 2007, the share of agriculture in the GVA amounted to 7.2 % which was the highest score in Slovenia. Although the share of agricultural land has constantly been decreasing since the 1990s, it still amounts to about 60 %. According to 2007 data, roughly 34 % (45,703 hectares) of the Pomurska region territory was covered by forests and 8,800 hectares (6.6 %) were built-up areas.

Different environmental issues and problems arise from environmental burdening caused by the intensive agricultural practices such as water and soil pollution etc., which are severe in the flat and environmentally sensitive Murska plain. Several analyses of surface and underground water show present negative consequences of agriculture; mostly with nitrates. The regional environment is also endangered by the process of overgrowing as a result of abandoning farming in mostly hilly areas of the region (especially the hilly Goričko).

The issues of national/regional self-sufficiency of agricultural production and the production of quality and healthy food products have been gaining importance over the recent years. Slovenia has been brought to extremely low levels of self-sufficiency of agricultural/food production (around 40 %). The amount of agricultural land per inhabitant is just over 5,000 m^2 on a national, but much higher (7,000 m^2) on a regional level. Especially the high amount of arable land per inhabitant in the Pomurska region (4,785 m^2), needs to be pointed out - it is five times higher than on the national level (only 884 m^2) representing one of the most important segments of the region's environmental capital. The region has the potential to become self-sufficient especially in the field of food production and energy supply. Such orientation can lead to better living conditions in the region and a higher quality of life.

From the aspect of sustainable regional development the efficient implementation of organic farming (and organic food production) is crucial for the future development of the region. Organic farming is a topic that has recently become popular also in regional development documents although the statistical results do not yet reflect that. Over the past decade organic farming has become more present across Slovenia as a whole, yet in Pomurska organic farming is less developed than in other areas of the country; in 2010 only 3 % of the farms were organic and just 1 % of the agricultural land is under organic production (MAFF 2010). The most important constraint for introducing organic farming to the Pomurska lowlands is the strong agricultural sector, used to the conventional techniques and not ready for changes. The qualitative changes of agriculture practices are not welcomed from the side of the farmers but also the official agricultural advisers do not recognize the role of sustainable food production in the area, where underground water is most sensitive due to hydro geologic characteristics. Due to the natural conditions, the introduction of organic farming is easier and a potential for the hilly areas of Goričko where plots of land are small and conventional agriculture production is very limited. This type of farming is not only sustainable in terms of the environment but can be well included into the development of Goričko Landscape Park. The people and developers are not aware that organic farming can importantly contribute also to the sustainable tourism development of the protected area.

4 Protected areas and areas of Natura 2000 – the mirror of regions preserved environmental capital

The environmental characteristics were initially the major factor for the implementation of the human activities. Nowadays there are also other important factors influencing the regional development but the so-called environmental capital remains one of the most important also due to its relative stability.

The environmental capital comprises natural values, biodiversity, natural resources, ecosystem services and land. Each component can have a directly applied value from the aspect of development (economic value), an indirectly applied value, or no applied value (Lampič and Mrak 2008), depending on the type of development activity as well as in the vision of the sustainable regional development.

Some statistical data for the Pomurska region reveal that its natural environment represents the region's major development capital – not only in terms of its recent use but also in terms of its preservation as well as future sustainable use (see Tab. 3).

The importance of preserved environmental capital is not only shown through the official statistical data but is also recognized through the regional media and the opinion of the main regional stakeholders (i.e. the representatives of regional development agencies, the regional forest management service). It is also reflected in the opinion of the local population that is very proud of its area – mostly of the preserved natural environment but also of the tradition and cultural heritage.

Tab. 3: Environmental capital in figures – the comparison of Pomurska region and Slovenia

Indicator	Slovenia	Pomurska region
% of Natura 2000 areas (2010)	36	45.5
% of protected areas (2010)	12	35.6
% of agricultural land (2009)	28	61
% of arable land (2009)	10	42
% of forests (2009)	64	34

Source: Ministry of the Environment and Spatial Planning, 2011

The preserved natural environment as well as the well-maintained cultural landscape results in the high percentage of the region that has been protected as classically protected areas, according to IUCN categories (35.6 % of the regions territory). In 2004 the areas of Natura 2000 were additionally defined, covering 43.5 % of the region. The two preservation forms mostly overlap except in the area of Mura River where Natura 2000 areas prevail (see Fig. 3).

The largest protected area in the region – the Goričko Landscape Park – covers 34.5 % of the region. It was established in 2004 however its main quality is the preserved cultural landscape as well as numerous localities of cultural heritage reflecting the natural conditions of the area to which the local population has adapted throughout the centuries (see Tab. 4). There are also nature values within the park, additionally protected according to IUCN categories. The park represents a unique example of the human maintenance of a natural environment, especially the landscape which has existed for centuries. In many cases the rich biodiversity of the park is the result of this historic symbiosis of nature and humans. Due to various threats to the area – such as

Tab. 4: Protected areas in Slovenia and Pomurska region according to the IUCN categories

	Slovenia			Pomurska region		
type of protected area	**number**	**area**	**% of states territory**	**number**	**area**	**% of regions territory**
national park	1	838 km²	4.1	-	-	-
regional park	3	418 km²	2.1	-	-	-
landscape park	44	646 km²	5.0	3	478 km²	35.6
Natura 2000		7,298 km²	36		613.5 km²	45.9

Source: Ministry of the Environment and Spatial Planning, 2011

intensive overgrowing of some parts in the park i.e. due to the abandonment of farming, the establishment of the park was necessary to preserve the area but on the other hand the richness of the biodiversity can only be maintained through the human presence and activities.

Overall in the Pomurska region one of the most important segments of the environmental capital is the renewable energy sources. They are directly linked to the region's geographic location and geographic conditions (i.e. the opportunity to use solar energy (Murska Sobota receives 1,935 h of sun/year; 1,284.55 kWh/m²) and geothermal energy).

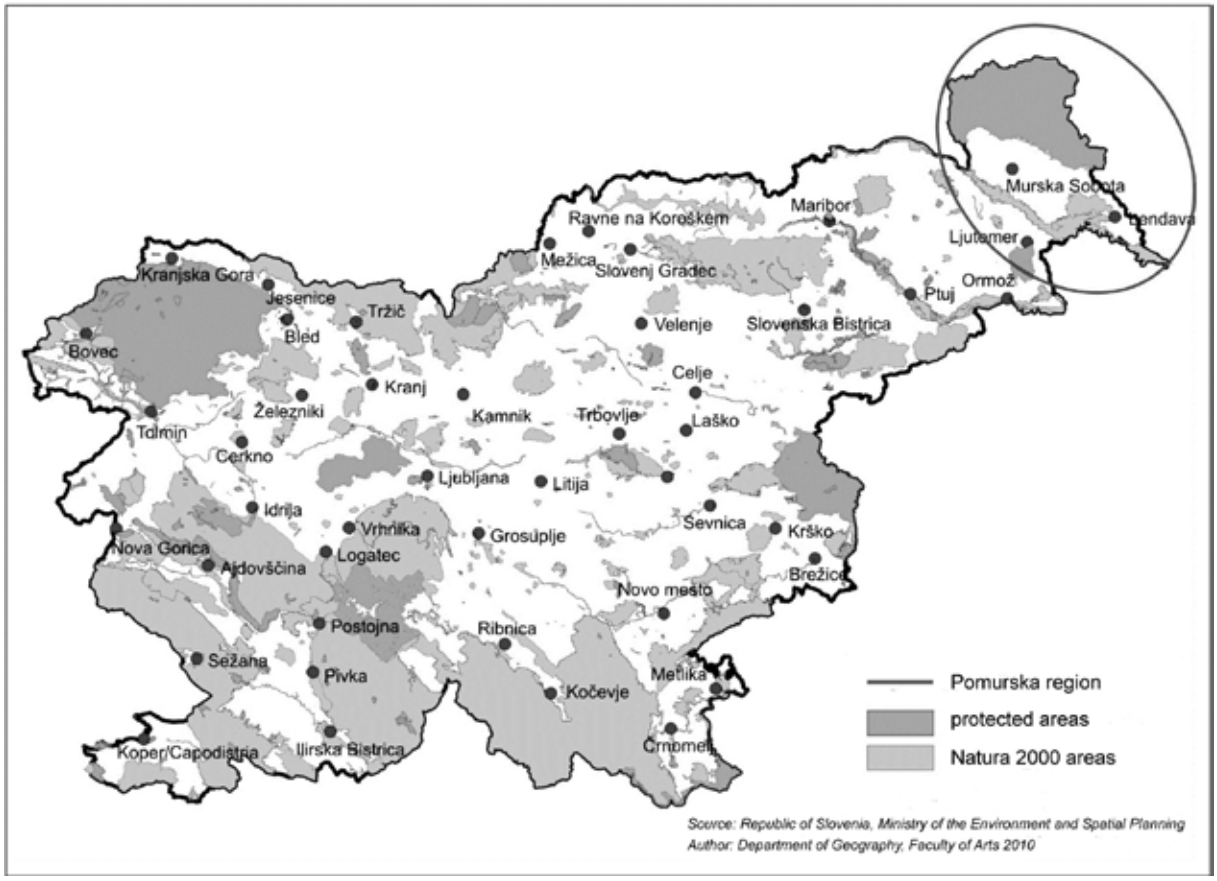


Fig. 3: The protected areas and areas of Natura 2000 in Slovenia

Although the preserved natural environment is a main advantage, the region is also facing quite severe environmental problems which are mostly connected with the intensive farming in the lowlands.

The most problematic are:

- the polluted groundwater and soil;
- the lack of sewage systems in some areas;
- the use of the arable land by highway construction as well as the increased air pollution due to heavy traffic;
- the overgrowing of the agricultural land (caused by out-migration and the abandonment of agriculture) especially in the hilly Goričko area;
- low environmental consciousness reflected in numerous garbage dumps in the natural environment.

These problems are well presented not only in the local media but are also recognized by the region's most important stakeholders as well as among the entire region's population. The Pomurska region is an agricultural region due to its geographic characteristics and historic background as well as its recent development but in recent years it has also become an important tourism destination with some successful sustainable tourism practices mostly based on the environmental characteristics as well as the tradition of the region. Therefore the mediation of the most severe environmental problems on one hand and the active preservation of the natural environment is of crucial importance.

5 Sustainable tourism – the answer to the rich environmental capital

Tourism development in the Pomurska region is primarily based on one of the region's most abundant natural resource – thermal water; therefore spas are the prevailing tourism stakeholders. One of the most important tourism subjects in the region is the spa *Terme 3000* in Moravske Toplice which has developed intensively over the past decades and is slowly linking its offer with the overall tourism offer in the region which is more and more sustainably oriented. The latest development of tourism (such as biking trails and other projects based on the area's tradition) was mostly reactivated through various EU funds and some segments of this offer can be recognized as a good practice of sustainable tourism.

Tab. 5: Basic figures in tourism to compare Pomurska region and Slovenia

year 2010	Pomurska	Slovenija	Share of Pomurska
Beds	7,634	117,947	15.4 %
Guests/Arrivals	248,197	3,006,272	12.1 %
Foreign guests	91,913	1,869,106	20.3 %
Nights spent	896,844	8,906,399	9.9 %

Source: SURS, 2011

The statistical data indicate the importance of the Pomurska region in the tourism image of Slovenia – overall in Pomurska there are 15.4 % of beds, providing almost 10% of the overnight stays in Slovenia; 12.1 % of tourists that arrive in Slovenia stay in the Pomurska region, 20.3 % are foreigners (see Tab. 5). The average length of stay in Pomurska is 3.6 days which is slightly longer than in Slovenia as a whole (2.9) – this reflects the case of spas in the region where the average length of stay is normally longer.

Before and after 2004 (Slovenia's entry into the EU) the sustainably oriented tourism projects started, supported by EU funds. The main actors are the three regional development agencies (Regional Development Agency Mura, Sinergija Development Agency, Development Agency of Prlekija) which have unequal roles within the overall regional development. Namely the Regional Development Agency Mura is the main development initiator in the region, supporting not only project ideas but also offering help in regional stakeholders' networking as well as in project management. The role of the other 2 RDA-s is minor but they are still initiate innovative ideas in the field of both - sustainable tourism development as well as in the management of protected landscapes. RDA-s are directly involved in sustainable tourism initiatives as well as in projects – as project leaders and more often as project partners in the team normally consisting of regional, national and quite often also international stakeholders. Through their projects RDA-s also indirectly positively influence the management of protected landscapes especially in cases when they cooperate with Goričko Landscape Park. Parallel to the RDA-s there are 27 municipalities of the Pomurska region and a list of NGOs which are very active in various fields of society. The very strong social capital of the region can be seen through the good practices, being one of the most important factors in project implementation. Municipalities, NGOs as well as other public institutions of regional importance are directly involved either in sustainable tourism development (mostly through projects) or in managing protected landscapes (i.e. Goričko Landscape Park; Natura 2000 areas).

Most of the examples of good practices (i.e. biking trails, the culinary brand 'Scent of Prekmurje', Mill trail etc.) were initially supported by EU funds (in a small percentage combined with national and local funding) therefore their existence is limited and only the future development will show whether they will remain the good practice. There are some examples which seem to have grown into regional brands and have become self-sufficient even after the EU financing was completed. The best example is the brand 'Diši po Prekmurju/Scent of Prekmurje'. The idea was implemented through the project which was initially supported through EU program PHARE in 2005. Nowadays the 'Scent of Prekmurje' is a communal trade mark connecting providers of regional culinary and other gastronomic specialties. It unites producers, providers and fans of quality food with the goal to improve quality as well as to protect and promote the culinary specialties of Prekmurje. The trade mark is an open decentralized system allowing new members to join should they match the admission criteria. The trade mark can therefore be currently upgraded; gaining quality as well as widening the list of products to offer.

The trade mark is promoted through various annual events throughout Slovenia; these occasions are also used to present and to grant quality certificates. Besides these bigger events the Association for the Promotion and Protection of Prekmurje Specialties organizes targeted promotional events (the so-called Prekmurje eves, Days of Prekmurje gastronomy) together with local caterers. There are two products which they have already managed to standardize and protect – Prekmurje ham (awarded by 'Protected designation of origin' status) and Prekmurje layer pie (recognized as

a 'Traditional specialty guaranteed') and have managed to protect the geographical origin of Prekmurje wines. In addition, Scent of Prekmurje offers other products that are made in Prekmurje and have a unique local character. The support of the *European Agricultural Fund for Rural Areas*: Europe invests in rural areas enabled the implementation of the project 'Promotion of Prekmurje ham and Prekmurje layer pie' in which the two products were presented at gastronomy and tourist fairs, various public events as well as in stores and shopping malls.

Currently the trade mark is intensifying the promotional activities (especially the marketing of Prekmurje layer pie and Prekmurje ham) within the frame and with the support of the *Rural Development Programme of the Republic of Slovenia 2007-2013*. The Prekmurje ham and Prekmurje layer pie providers can join the trade mark only after proving that their match the protection requirements and can then use the protected name and obtained protected marks. The trade mark unites 33 certified providers of Prekmurje layer pie (coming mostly from the Pomurska region; partially from other parts of Slovenia). The group of Prekmurje ham producers and providers are located in the Pomurska region but are well-established in the Slovenian as well as in the international market. The products are well-embedded in the region's overall tourism offering and represent a successful story of including local products in the regional tourism offer.

The Scent of Prekmurje trade mark is a good example of the initiative that was originally supported by EU funds and later on developed into a well-recognized and active business which not only significantly contributes to the regional economy but also heavily as well as sustainably influences the regional tradition. According to Istenič Černič (2009) in the case of Scent of Prekmurje the small business culture as well as the social capital played a more important role than the measures of the national 'Program of Rural Development'.

The Pomurska region has already received significant amounts of EU funding and the important part thereof was allocated to tourism development projects (which were not necessarily sustainable). One should not neglect the importance of the Goričko Landscape Park Management institution which also initiates as well as implements projects in the field of sustainable tourism but also highly depend on EU funding. Therefore the future sustainability of numerous projects is questionable and unfortunately it remains difficult to objectively assess this segment due to the short time that has passed since most of the projects being completed.

6 Conclusions

For years the Pomurska region was recognized as a typically peripheral rural region. Its border position, poor traffic connections and population decrease resulted to various development obstacles. However recently the status and role of the region has slowly started to change:

- depopulation is declining;
- the educational structure of the population is improving;
- better traffic connections (construction of highway);
- the identification of high-quality environment, natural resources, endogenous development opportunities;
- the status of a rural and agricultural region is again recognized as a development potential.

The 'lagging behind' situation is changing but due to a strong dependence on the industrial sector which was affected during the economic crisis the reconstruction and improvement process is very slow.

Overall the environmental capital represents the most important and solid sustainable development potential of the Pomurska region although it will need special care in terms of maintenance and preservation in the future development perspective. The agricultural character of the region is not recognized as a potential in terms of the sustainable development of the region. The potential for food production is high but the quality of food production and introducing sustainable practices are insufficiently supported. They are recognized as potential for the future regional development on a formal level (regional development plans) however in practice the changes to sustainable agriculture (organic farming) are slow and not always welcomed by farmers (and some agriculture advisers).

The two topics – the environmental situation and nature protection are not present enough within discussions on the regional level and also the regional development authorities are not active enough in these topics. Therefore the situation needs to be improved by actions on various levels – among the local population, within the educational system as well as on the legislation and development strategies levels.

The local population does not recognize all advantages and benefits of the protected areas. They mostly see limitations and obstacles for their "idea" of development. During the process of designation the local population, different civil initiatives, local, regional and national authorities need to cooperate. Local initiatives (bottom-up approach) still prove to be the best way for the successful protected area story.

The communication and cooperation between the protected area management institution and local people/initiatives/associations is the key for a successful approach. A clear vision for developing the protected area is needed more than management or management plans etc. In the case of the sustainable tourism projects the sustainability of results after the implementation needs to be assured to avoid restricting the effects to the short term.

The future closer link-up of sustainable agricultural practices with tourism and renewable energy use would bring the region closer to its recognized priorities and sustainable development opportunities.

References

Employment Service of Slovenia, 2010.

Istenič Černič, M. (2009): Successes and failures of EU food quality schemes: experience from the case of 'Scent of Prekmurje', Slovenia. Available at: http://ageconsearch.umn.edu/handle/94903 (30.5.2011).

Lampič, B., I. Mrak (2008): Vrednote, vrednosti in razvojni potenciali območij varovanja, Dela 29. Ljubljana, pp. 145-159.

Ministry of Agriculture, Forestry and Food (MAFF), 2011.

Ministry of Environment and Spatial Planning, 2011.

Program spodbujanja konkurenčnosti Pomurske regije v obdobju 2010-2015 (Programme for promoting competitiveness of the Pomurje Region 2010-2015), 2010. Available at: http://web.rra-mura.com/prenosi/Program%20spodbujanja%20konkurencnosti,04022010.pdf (25.3.2011).

Statistical Office of the Republic of Slovenia (SORS), 2010.

Woods, M, L. Jones (2010): Case study contextual report 7, Pomurska. Developing Europe's Rural Regions in the Era of Globalization (DERREG).

Zakon o razvojni podpori Pomurski regiji v obdobju 2010-2015 (Law on development support to the Pomurje region in the period 2010-2015), Ur.l. RS, št. 87/2009.

Zakon o spodbujanju skladnega regionalnega razvoja (ZSRR-1) (Promotion of Balanced Regional Development Act), Ur.l. RS, št. 93/2005

Perspectives and potential for forestry in Ireland

John McDonagh, Maura Farrell and Marie Mahon

1 Introduction

In direct and indirect terms, forestry is an increasingly important part of the rural economy. Emerging from its traditional industrial timber production role to one of a multi-purpose multi-functional resource, forestry is now seen as encompassing myriad resources and functions, from wood production, carbon sinks and arenas of biodiversity to tourism, recreation and energy resources. An additional dimension is that of a changing agricultural landscape and the emergent polarisation "between a minority of full-time farmers with progressive farming prospects and the vast majority of landowners with declining prospects or little dependency on primary production" (Elands & Praestholm 2008, p. 72). Against this constrained production context, forestry is increasingly promoted in rural development both in terms of farm income diversification and in providing employment to contribute to broader challenges of rural viability and sustainability (Ryan 2011). Concentrating on the West of Ireland, this paper explores the perspectives and potential for forestry development in a country not only lacking a tradition in forestry but one where commitment to forestry is questioned both by producers and decision makers. In particular this paper focuses on key decision-making stakeholders and their views on forestry development in Ireland. While considerable attention has been given in recent times to the views of farmers (see McDonagh et al. 2010), landowners (Elands & Praestholm 2008), communities (Crowley et al. 2001) and economies (Slee & Wiersum 2001) there has been little attention given to the decision makers in terms of their insights to forestry development. Drawing on empirical work conducted largely in the West of Ireland, this paper uses a qualitative approach in the form of semi-structured interviews with key stakeholders involved in the forestry sector. These stakeholders include representatives of enterprise and business associations, public authorities, State agencies and science and research institutes. What has emerged from these interviews is that forestry has a clear role in traditional industrial timber production and increasingly in ecological, environmental, amenity and employment arenas. It is also apparent that there is great confidence in the role that forestry can contribute to rural sustainability. For forestry to expand and thrive, however, it is also argued that there is a need for policy re-evaluation and the continuation of consistent and sustained financial support. Suggestions for positive forestry promotion, school programmes and extension advisory promotions are also deemed necessary in order to help reposition forestry in a more positive land use context and encourage a shift in mindset from the many negative views of forestry that seem to predominate.

2 The repositioning of forestry in rural development

Forestry has a long and complex connection with rural development. Reflecting the decline in traditional associations with timber production, the current debate has moved beyond this narrow focus to consider the important multifunctional role of forests along with their sustainable management for the benefit of society and economy. Primary production has long since ceased to be the mainstay of rural areas (McDonagh 2007), and coupled with declining farming populations, reduced service availability and growing urbanisation, not only are rural areas changing (Farrell et al. 2008) but

resources linked to those areas, which includes forestry are equally changing both in use and role (Ní Dhubháin et al. 2009). This shift from a productivist to a post-productivist mode of forestry (Milbourne et al. 2006) akin to that experienced in agriculture sees terms such as multi-purpose or social forestry introduced alongside those of discourses of sustainability, as part of a shift to reconstruct forestry and the role of forests in rural society. In Europe this apparent shift is nowhere more prevalent than in the principal documents dealing with the forestry sector, namely, the EU's Rural Development Regulation (EC No 1698/2005), the EU's Forestry Strategy 1998 (Council Resolution 1999/C 56/01) and 'Sustainable Forestry and the EU' (European Communities (EC) 2003). All of these point towards the important role of forestry in realising rural development objectives, promoting employment, improving well-being and the environment. Competitiveness of agriculture and forestry is at the core of Axis 1 of the EU's Rural Development Policy which sets itself the target of "assisting rural areas ability to maintain viable agriculture, food and forestry sectors (as part of) an overarching goal of achieving an open and sustainable economy, which attracts investment and employment in our rural area" (EU Review 2010, p. 4). Forestry is central within this desire both in terms of its 'green growth' potential, in its contribution to environmentally-friendly demands and in providing "environmental services for the rural community and society as a whole (such as its) contribution to biodiversity etc." (ibid., p. 7). Indeed the EU view is that forestry has the potential to contribute both to the Lisbon objectives of sustainable economic growth and competitiveness and to the Gothenburg objectives of safeguarding the quantity and quality of the rural resource base, while also being crucial to the fulfilment of Community commitments in halting the loss of biodiversity and in mitigating climate change (see McDonagh et al. 2010 forthcoming).

3 Forestry in Ireland

In the first instance forestry in Ireland lacks historical presence. There is also "evidence to indicate that where opportunities afforded by forestry development exist, these are very often overlooked or dismissed by farmers due to emotional attachment to the land and/or perceived ideas of failure" (McDonagh et al. 2010 forthcoming). Despite this, forestry is seen as an expanding and developing sector in the Irish rural economy, with "an increasingly important role in rural development not only through the diversification of farm income but also through the provision of rurally based employment both of which contribute to rural stabilisation and viability" (Ryan 2011, p. 121). Forests now cover approximately 10.7 % (745,457 ha) of the land area (Forest Service 2010), up from < 7 % (< 5,000 ha) in 1990.

Still among the lowest forest cover in the EU (Eurostat 2009) (see Fig. 1) Ireland's annual planting was 15,815 ha between 1986 and 1999 and 11,560 ha between 1997 and 2007 with a peak of 23,710 ha in 1995 and a trend generally downwards since (Malone 2008). Despite the current economic downturn the 2010 Budget allocated funding for 7,000 ha of new planting in 2010 and the planting for 2007, 2008 and 2009 was broadly stabilised in that 6,947 ha, 6,181 ha and 6,648 ha were planted in respective years (Forest Service 2009) (see Fig. 2). While the strategic policy document 'Growing for the Future' (published in 1996) envisaged an increase in the area under forestry to 17 % by 2035, a review by Peter Bacon & Associates in 2003 suggested a national planting target of 20,000 ha per year be maintained to primarily secure a sustainable commercial processing sector in Ireland but also to promote the importance of the non-timber value of wood for carbon sequestration, biodiversity, amenity and recreation. In the Foresight

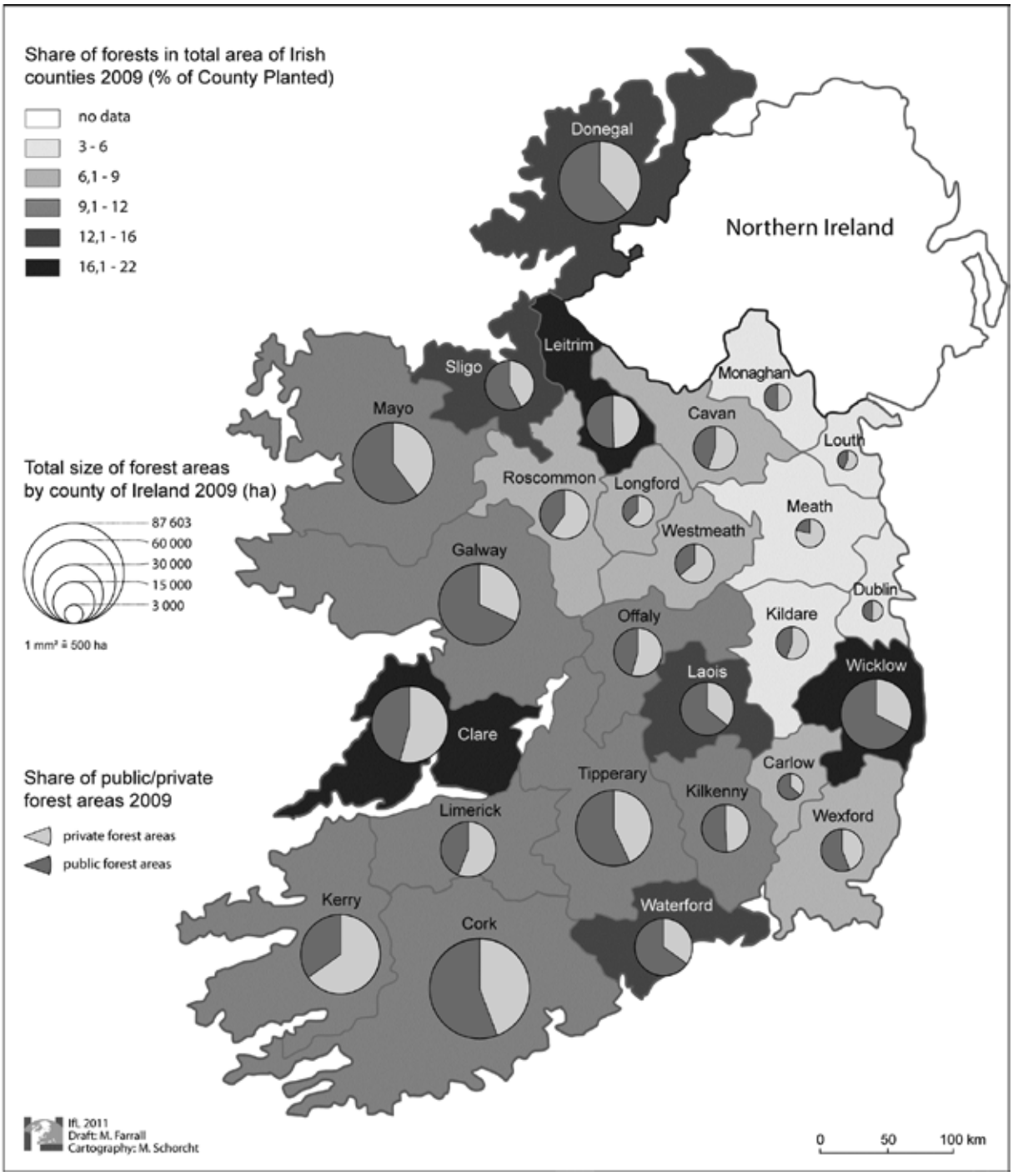


Fig.1: Share of forests in total area of Irish counties 2009

2025 study, Fennessy (2005) also highlighted the importance of Irish forestry as a provider of public goods into the future, particularly in the areas of carbon sequestration, biodiversity, recreation and water quality. In her assessment of the situation and outlook for forestry 2010/2011, Ryan (2011) suggested however that "in the absence of a busy timber harvesting sector, there will be less employment available in rural areas and at an individual forest owner level, there will be no income stream from farm forests to support local rural economies" (2011, p. 139).

In terms of competitive advantage, the rate of tree growth in Ireland is over twice as fast as in mainland Europe and three times as fast as in Scandinavian countries (see Gardiner 1993), giving Ireland's forest owners a strong platform (Farrelly 2010). In relation to forest cover approxi-

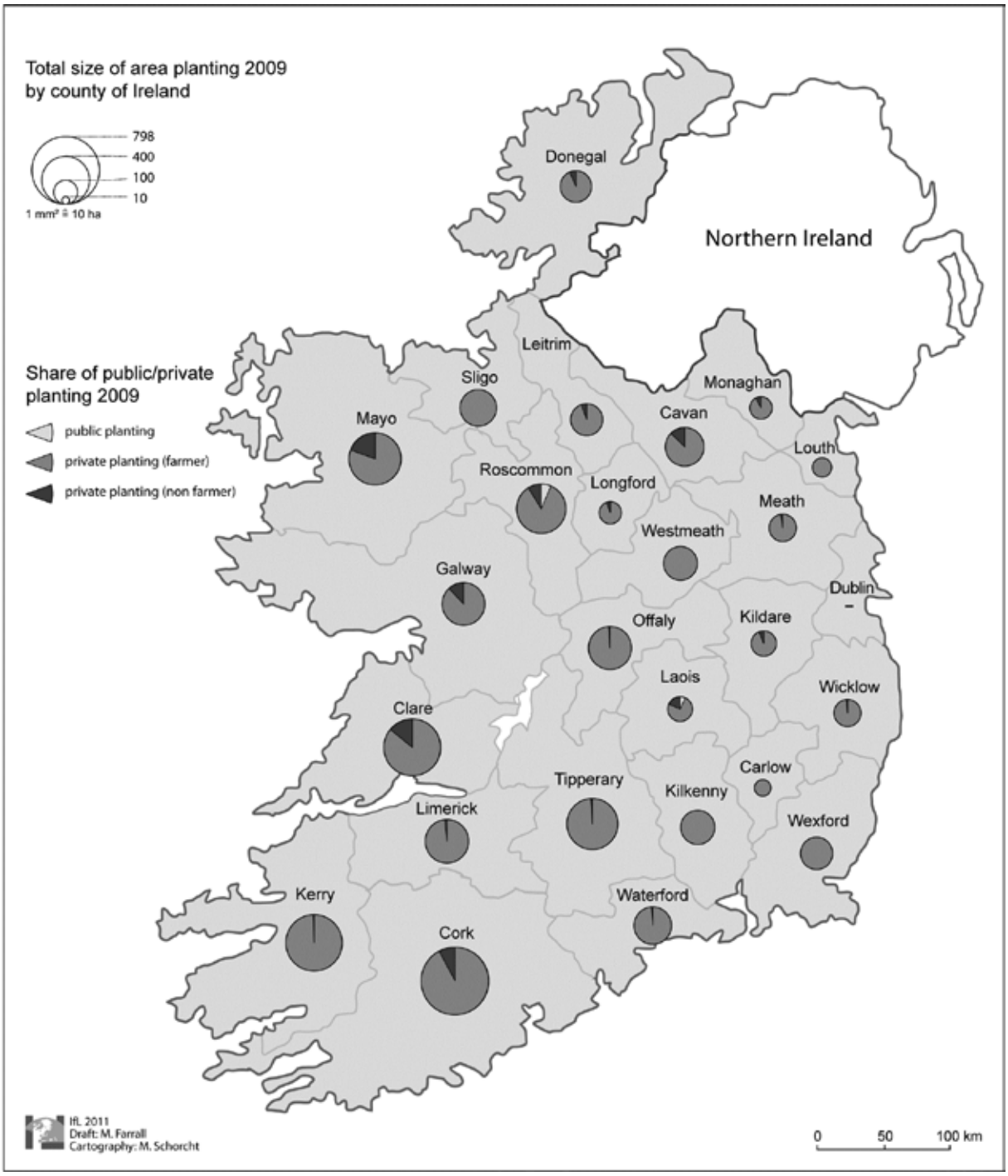


Fig. 2: Total size of area planting 2009 by county of Ireland

mately 745,457 ha of land is under forestry in Ireland (10.7 %). Of this, the total area of privately owned forest is 339,341 ha; the average size plantation is 8.2ha with approximately 15,000 forest owners and a total timber production (2008) of 2.4 million m^3 (Private: 0.12 mill. m^3) (Forest Service 2010). The output of Irish forestry and forest products sector is estimated by the Irish Forestry and Forest Products Association (IFFPA) at being € 1.89 billion or just less than one percent of GDP (IFFPA 2010 cited in Ryan 2011). The contribution to rural economies is further boosted by the € 72 m paid to farmers through forest premiums (Forest Service 2010).

Forestry thus reflects the single biggest land use change in Ireland over the past decade, with a critical mass of private forestry now developing. This trajectory is supported in no small measure

by the changing nature of the policy environment that sees forestry support under CAP moving from an alternative use for land taken out of agricultural production in the 1992 reforms to becoming a means of delivering EU environmental objectives which has parity with agriculture in all three axes of the EAFRD.

4 Methodology

While there are a variety of stakeholders involved in forestry in terms of producers, consumers and decision makers, this paper focuses on the latter group, namely the key stakeholders from enterprise and business associations, public authorities and State agencies and from the sciences and research institutes. In all, eleven groups were targeted – two Universities with expertise in forestry research and development; the Western Forestry Co-operative Society Ltd; Mid Western Forestry Services Ltd.; Sustainable Energy Ireland; Teagasc – Public authority/State agency but also research institute; Coillte Forest; COFORD – the National Council for Forest Research and Development; Muintir na Coillte; Forestry Service, Department of Agriculture, Fisheries and Food. The eleven key actors interviewed were mainly employed in a senior capacity with extensive experience in the area of forestry. The focus of the interviews was to consider attitudes and aspirations of the stakeholders to the repositioning of the forestry sector within the regional development sector under influence from the interaction of global, regional and local environmental discourses, including the relative positioning of productivist forestry, conservation, and opportunities for 'eco-economy' initiatives.

5 Discussion

The use of this qualitative approach and the semi-structured nature of the interviews allowed for a variety of issues to be discussed and many perspectives and potentials elaborated on. In particular, given the potential for forestry development in Ireland, stakeholders reiterated the need for policy change and the continuation of consistent financial support for afforestation. The main issues highlighted included: State involvement; economic potential of forestry; barriers to forestry and the policy environment.

5.1 State Involvement in Forestry

The Department of Agriculture, Fisheries and Food has overall responsibility for forestry development in Ireland and for the most part the Irish State's direct involvement in forestry planting in Ireland reflects EU policy. Prior to the 1980s, the State's involvement in forestry was exclusively State planting on State land. This has changed dramatically with State funding now promoting afforestation among the farming community as a method of agricultural diversification (see Fig. 3a and 3b). Initial planting is grant aided and annual premiums are provided to all farmers for a 20 year period for loss of income. Many stakeholders commented that forestry is promoted by the State through the extension advisory division of Teagasc, without which there would be little or no forestry in many parts, particularly in the West of Ireland, with one stakeholder pointing to the "grants made available in the late 1980s (that) were targeted at farmers in the West of Ireland who did not have income to diversify". Some individuals questioned the consistency of State sup-

port in that national planting has dropped to 6,500 ha annually while a COFORD (National Council for Forest Research and Development) stakeholder suggested that 15,000 ha annually would be more appropriate. A reduction in annual premiums by 8 % in 2009 was also identified by many stakeholders as a lack of consistent support by the State for forestry. Many individuals suggested that without the support of the Green Party in recent years State involvement in forestry would be minimal.

State involvement (through funding) in forestry was also seen as hugely significant in terms of its role in renewable energy and as a potential carbon sink. Several stakeholders suggested that forestry conservation activities and planting could result in the reduction of carbon emissions; however, this is somewhat dampened by the comments of one stakeholder that the State does not have a specific policy in terms of controlling carbon emissions, and that using forests as sinks is not recognized by the Kyoto Agreement until after 2012. Current Irish forestry policy is set out in the Strategic Plan for the development of the forestry sector in Ireland at a macro level rather than a regional level. Some stakeholders were critical of this strategic plan and regarded it as outdated and failing to take into consideration issues relating to carbon emissions and renewable energy. The objectives of the 1996 Strategic Plan were largely associated with the production of timber for construction and not for renewable energy. Nonetheless, many interviewees suggested that State support for forestry into the future may very well depend on its role in reducing carbon emissions. One further interesting development in terms of the State's role was the lack of acknowledgement of the multifunctional use of forestry with the State not following through on grants for amenity forestry. One stakeholder commented that forestry for recreation and tourism was *"not very high on the State's forestry agenda",* even though forestry walks and recreation were highlighted as potential areas of development for many rural areas.

5.2 Barriers to Forestry

The concept of forestry and forestry development has raised many debates and contentions in rural Ireland. There has been some interesting work by O'Leary et al. (2000) which used two case study counties (Leitrim and Wicklow) to explore perceptions of forestry among those living there. Research by Ní Dhubháin et al. (2009a) explored the tradition and history of forestry in different locations and how this impacted on attitudes towards afforestation in amenity or economic values. Carroll et al. (2010) used the concept of differentiated landscape to examine the varying social responses to afforestation in two study sites in County Kerry in the southwest of Ireland. Whatever the perception or attitude, it would appear however that despite the multifunctional role that forestry now provides, its increased economic potential and its central role in rural development policy, there is still a cautionary approach when it comes to farmers willing to plant their land (McDonagh et al. 2010 forthcoming). In the context of this research, exploring the barriers to encouraging increased rates of afforestation by farmers (and other private planters) in rural Ireland, stakeholders suggested that a lack of confidence, tradition and culture among farmers were the main barriers to afforestation in Ireland (particularly in the west of the country). Farmers fear the permanency of forestry and are reluctant to 'tie-up' land in forestry development for an extensive period of time even though farming in many rural parts (particularly the West Region) is not financially viable. Most stakeholders commented that farmers would consider forestry development if the financial incentives were adequate and if confidence in the premiums was restored following

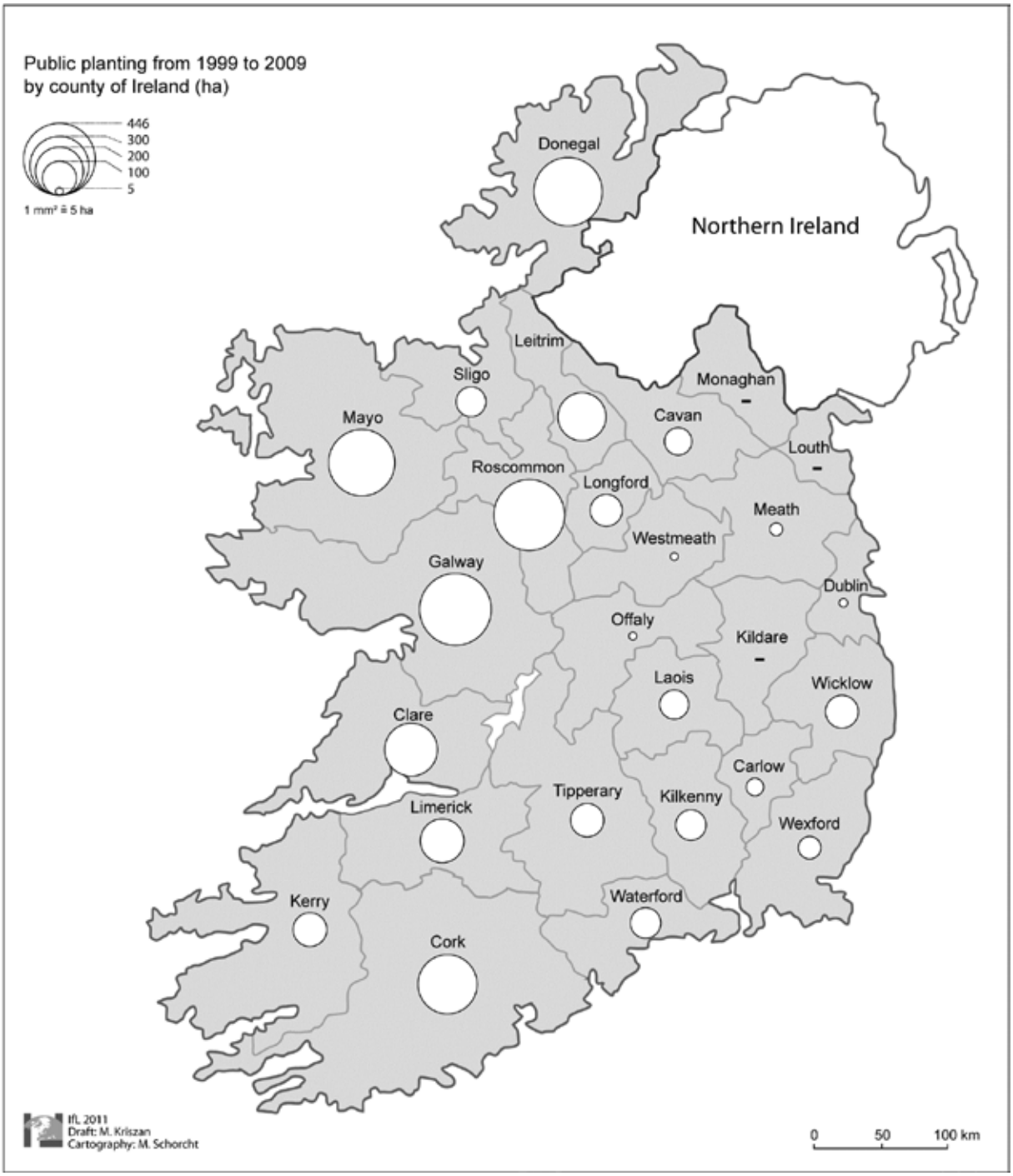


Fig. 3a: Public planting from 1999 to 2009 by county of Ireland

an 8 % reduction in 2009. Stakeholders also suggested that the current economic crisis in Ireland had a major impact on farmers dependent on part-time employment and that this may bring about a change in attitude to forestry. One stakeholder in particular commented that "*farmers, up to this year had off-farm income from part-time construction work so they were not as concerned about incomes from the land, but now due to the recession farmers need to maximize their income from the land and forestry may be a more suitable consideration*". Succession issues were also considered a barrier as both farmer and successor were unsure of the future workings of the family farm. Land structure in the West Region was also considered a barrier to afforestation as small plots of land prevent a reasonable area of land being available for planting. It was also argued that the grant

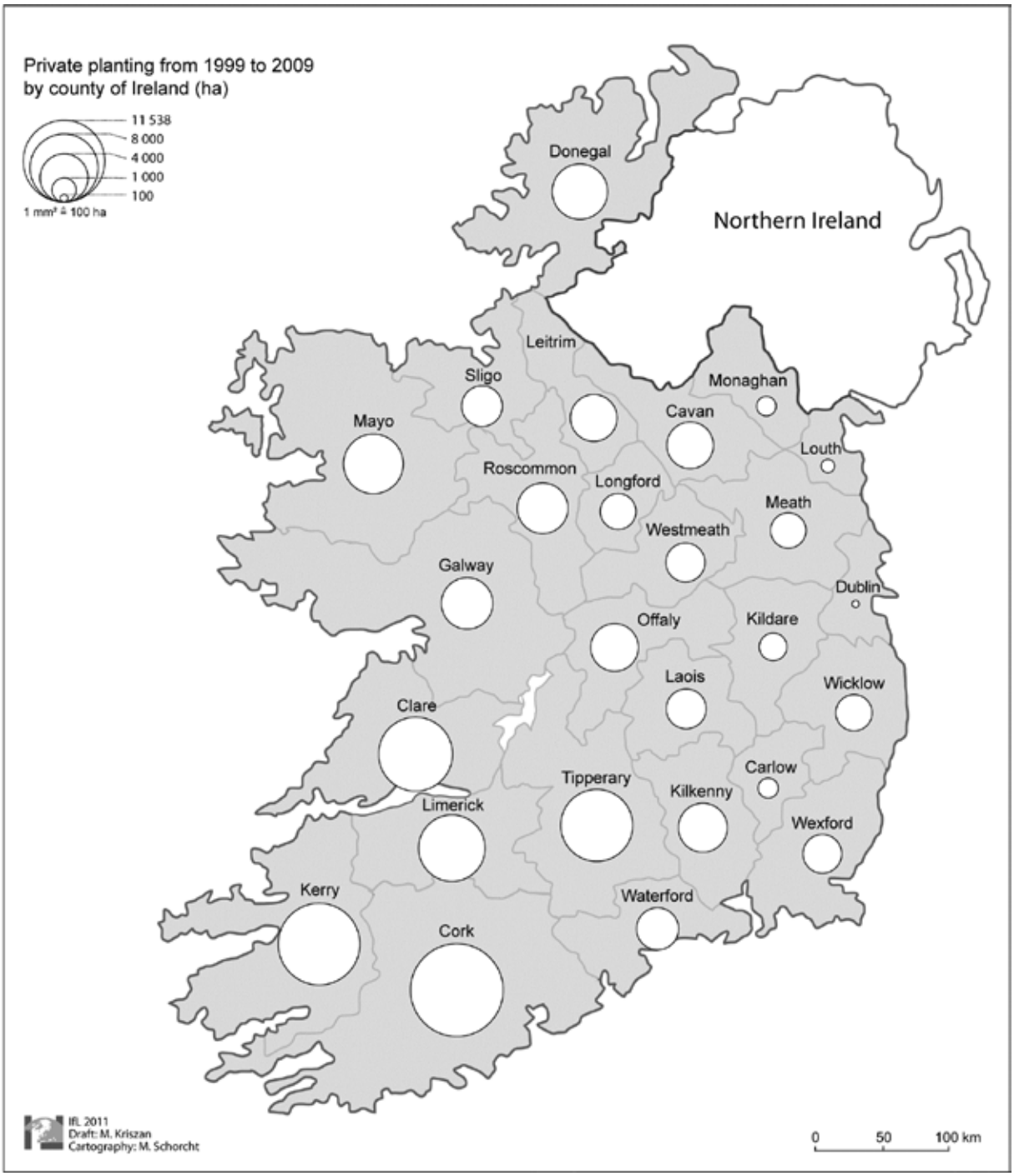


Fig. 3b: Private planting from 1999 to 2009 by county of Ireland

system in Ireland favoured afforestation by land owners, with some stakeholders suggesting that this should be extended more equally to investors, as although the grant system was open to investors it varied in that a lesser premium was available for 15 years rather than 20 years for farmers.

Expanding the discussion in terms of the economic potential of forestry, it was argued by most of the stakeholders that forestry had real economic potential if it was well managed. Some suggested that bio-energy could enhance the value and potential of forestry, particularly if planters embraced thinning procedures. One stakeholder commented that significant opportunities to increase profits arise when forests are ready for thinning. This was highlighted by Breen et al. (2010) when they suggested that thinning increases the Net Present Value (NPV) of forests,

with Farrelly (2007) suggesting increases in NPV of over €2,500 per hectare in very productive sites if thinned. Wood energy was also endorsed and although forestry premiums was the greatest incentive to planting, interviewees believed that going on market value there was huge potential for forestry in terms of a renewable energy resource. While Ireland has an excellent growing climate and suitable soil to encourage forestry in terms of economic potential, some interviewees had reservations regarding the economic potential of forestry in the west region as previous planting was carried out on unsuitable land. They felt these sites would not produce a profitable crop and consequently some stakeholders suggested that farmers needed to be encouraged to plant on good land rather than marginal land and thereby develop a stronger, more economically viable crop. It was further suggested that farmers needed to be made aware of the potential value of forestry planting and the fact that forestry may have better returns, albeit over the longer term. Most stakeholders suggested that improved awareness would materialise if farmers gained an income from thinning and in turn if local markets were readily available. Training for farmers in forestry development was also suggested; albeit, Teagasc does offer extensive training with little apparent effect among the farming community. Stability in the State's support was also suggested as a means of overcoming barriers to afforestation.

In terms of future trajectory, stakeholders suggested that the main focus for the development of forestry should be on increasing the level of afforestation among the private sector. This in turn would enhance the development of local markets for bio-energy and timber products, which would have the added advantage of promoting rural development. The practice of thinning needed to be promoted among growers which would provide an additional income and would support the wood pellet market and the construction industry. A number of stakeholders commented that forestry also had a tourism potential, but emphasis needed to be placed on the provision of compensation for farmers if this option was to be realised. Interestingly it was suggested that emphasis needed to be placed on government policy and 'joined-up' thinking, whereby, for example, the Departments of the Environment, Marine Natural Resources and Agriculture came together and re-examined forestry policy, in terms of a wider strategy of development of indigenous natural resources which would include forestry-related initiatives.

5.3 The role of Policy instruments

In terms of how forestry received emphasis through various policy instruments, the response among the interviewees was mixed in that most stakeholders suggested that government support for forestry was largely reflected in the grant and premium system. In addition, while considerable acknowledgement was given to forestry in the new Programme for Government, concerns were expressed by some interviewees that forestry only held this prominent position because it was supported by the Green Party who were in government at the time. Questions were raised as to whether this would remain the case if the Green Party failed to re-enter government following the then-imminent national elections. On a less enthusiastic note many of the respondents suggested that current forestry policy was inadequate and that the 'push' for forestry had declined considerably since the 1996 policy initiatives, with forestry policy not meeting its required targets and thereby not receiving the required emphasis. In particular it was noted in several comments that the multifunctional nature of forestry was not receiving the necessary focus through the various policy instruments.

One policy instrument that was raised was the bio-energy working groups. It was noted that the development of bio-energy requires a cross sectional view from different departments such as the Department of Agriculture and Department of the Environment; yet the feeling was that, at present, a 'silo' approach was evident, and this needed to be replaced by a cross departmental view. The success of forestry, according to one stakeholder, was more by accident than design and as such, clarity and updating of current policy was essential. In relation to climate change and carbon counting, forestry was also seen as invaluable both in its replacement for fossil fuels and as a renewable building product. The value of forestry was also thought of favourably in terms of farm forestry and tourism, particularly in terms of economic potential in the West of Ireland with some stakeholders suggesting groups like the Western Development Commission and LEADER Local Action Groups as ideal organisations to promote forestry as a realistic rural development initiative in this region. However for such initiatives to be nurtured, interviewees also urged the need for co-operation between the many organisations across the State to ensure the provision of sufficient and stable funding to sustain the forestry sector into the future.

In terms of this latter issue, there was an overwhelming consensus that financial support was the key to developing forestry in the West of Ireland. The contention was that positive forestry promotion could facilitate a change in the negative perception of forestry that prevailed among many farming communities. It was also suggested that school programmes and extension advisory promotions could provide growers with positive information and confidence in their decision to plant, even though such promotions would also require considerable funding. While some stakeholders argued that there was real justification for the State to support forestry from the point of view of its climate change agenda, others suggested that established timber and wood energy markets (business, schools and hospitals etc.) could provide substantial income returns for growers and offset the need for State support.

Overall the respondents felt that serious consideration needed to be given to State forestry policies relating to bio-energy as this was likely to be the biggest energy resource to come out of forestry by 2020. While environmental aspects of forestry were taking on a new dimension in the broader policy arena, more emphasis on the multifunctional value of forests was required. The grant support system for farmers needed to be re-evaluated both in terms of farmer and investor. Respondents also suggested that forestry development in the West of Ireland needed to be given serious consideration through a 'Western Package Forestry Policy' which could promote forestry and its multiple uses, specifically in the West where it could contribute to rural development and rural sustainability.

6 Concluding remarks

The use of the qualitative semi-structure interview approach provided valuable information on the way in which key stakeholders perceive of forestry in rural Ireland and more importantly, the way such stakeholders view the potential of forestry in terms of future rural development. It is clear that there are many challenges, both cultural and economic, in bringing forestry in to the mainstream of land use activity in rural Ireland. Forests as a land use have moved rapidly from the traditional industrial timber production model to providing roles in creating ecological and amenity arenas as well as employment. However, what is clear from this research is that forestry can (and does) play a significant role in the economy of rural areas such as the West of Ireland. In

recent years there has been an increasing emphasis on the positioning of forestry as an alternative energy industry; its potential for carbon sequestration and the provision of multifunctional aspects of forestry such as forestry recreation. This is clearly acknowledged as being an important focus in terms of the discussion with the key stakeholders and encouragingly, these key forestry stakeholders showed great confidence in the role that forestry, environmentally and economically, can contribute to rural sustainability. As with all positive steps there is often a cautionary note, In this case the positivity is tempered somewhat by the fact that despite generous grants and premiums, afforestation was stagnant and, in some areas, in decline. Cognisant of this position, stakeholders reiterated the need for policy change and the continuation of consistent financial support for afforestation throughout Ireland and particularly the Western region.

References

Breen, J., D. Clancy, M. Ryan, F. Thorne & M. Wallace (2010): The Returns to Farm Afforestation in Ireland: a Discounted Cash Flow analysis. Irish Forestry Publication.

Carroll, M. S., Á. Ní Dhubháin & C.G. Flint (2010): Back Where They Once Belonged? Local response to afforestation in County Kerry, Ireland. In: Sociologia Ruralis, Vol. 51, 1, pp. 35-53.

Crowley, T., Á. Ní Dhubháin & R. Moloney (2001): The economic impact of forestry in the Ballyvourney area of County Cork, Ireland. In: Forest Policy and Economics, 3, pp. 31-43.

Department of Agriculture, Food and Forestry (DAFF), (1996): Growing for the Future – A Strategic Plan for the Development of the Forestry Sector in Ireland. Government Publications Office.

Elands, B.H.M. & S. Praestholm (2008): Landowners' perspectives on the rural future and the role of forests across Europe. In: Journal of Rural Studies, 24, pp. 72-85.

EU Review (2010): EU Rural Review. European Network for Rural Development, No. 5.

European Commission (2009): Report on implementation of Forestry measures under the Rural Development Regulation 1698/2005 for the period 2007-2013. Directorate-General for Agriculture and Rural Development, AGRI H4.

European Communities (2003): Sustainable Forestry and the European Union – Initiatives of the European Union. Office for Official Publication of the European Communities. Luxembourg.

Eurostat (2009): Europe in Figures – Eurostat Yearbook 2009. Office for Official Publication of the European Communities. Luxembourg.

Farrell, M., J. McDonagh, & M. Mahon (2008): The Options for Farm Families Programme: Rhetoric and reality of Change. In: Journal of International Agricultural and Extension Education 15 (3), pp. 39-58.

Farrelly, N. (2010): Why Irish Forests are World Beaters. Todays Farm. August 2010. Teagasc, Ireland.

Farrelly, N. (2007): To thin or not to thin? TResearch Vol. 2, No. 4, Teagasc. In: Fennessy, J. (2005): Foresight Report on the Forestry Sector in Ireland. In: Rural Ireland 2025 Foresight Perspectives, pp.69-76. www.teagasc.ie/publications/2005/20051216/index.asp.

Forest Service (2010): Annual Statistics 2009. Department of Agriculture, Food and Forestry (DAFF) Ireland. Available at: http://www.agriculture.gov.ie/media/migration/forestry/forestservicegeneralinformation/2009%20Afforestation%20statistics%20300310.xls.

Forest Service (2009): Monthly Reports October. Department of Agriculture, Food and Forestry (DAFF) Ireland.

Gardiner, J.J. (1993): The socio-economic impact of forestry upon rural development in Ireland. In: Volz, K-R. & N. Weber (eds.): Afforestation of agricultural land. Proceedings of a workshop in the community programme of research and technological development in the field of competitiveness of agriculture and management of agricultural resources (1989-1993), Brussels, Belgium.

Malone, J. (2008): Factors Affecting Afforestation in Ireland in Recent Years. A Report for the Minister of State with responsibility for Forestry, Ms Mary Wallace T.D. http://www.agriculture.gov.ie/media/migration/forestry/malone.doc. Accessed December 1st 2010.

McDonagh, J. (2007): Rural Development. In: Bartley, B. & R. Kitchin (eds.): Understanding Contemporary Ireland, pp. 88-99. London: Pluto Press.

McDonagh, J., M. Farrell, M. Mahon & M. Ryan (2010 forthcoming): New opportunities and cautionary steps? Farmers, forestry and rural development in Ireland. In: European Countryside (forthcoming).

Milbourne, P., L. Kitchen, & K. Stanley (2006): Social forestry: exploring the social contexts of forests and forestry in rural areas. In: Cloke, P., T. Marsden & P.H. Mooney (eds): Handbook of Rural Studies, Chapter 16, pp. 230-242.

Ní Dhubháin, Á., M-C. Fléchard, R. Moloney, & D. O'Connor (2009): Assessing the value of forestry to the Irish economy – an input-output approach. In: Forest Policy and Economics 11, pp. 50-55.

Ní Dhubháin, Á., M-C. Fléchard, R. Moloney, & D. O'Connor (2009a): Stakeholders' perceptions of forestry in rural areas – Two case studies in Ireland. In: Land Use Policy 26 (3), pp. 695-703.

O'Leary, T., A. G. McCormack, & P. Clinch (2000): Afforestation in Ireland: regional differences in attitudes. In: Land Use Policy 17 (1), pp. 39-48.

Peter Bacon & Associates (2003): Forestry: A Growth Industry in Ireland. http://www.coillte.ie/fileadmin/templates/pdfs/BaconReport.pdf. Accessed: December 1st 2010.

Ryan, M. (2011): Situation and Outlook for Forestry 2010/2011. In: Outlook 2011 – Economic Prospects for Agriculture, Rural Economy Development Programme, No 17, pp. 121-142.

Slee, B. & K.F. Wiersum (2001): New opportunities for forest-related rural development in industrialized countries. In: Forest Policy and Economics 3, pp. 1-4.

Forest Management Perspectives in the South Moravian Region – Quantitative and Qualitative Analysis

Hana Vavrouchová, Pavel Trnka, Kristýna Novotná and Lenka Jakešová

1 Introduction

Although the forestry sector does not dominate the agrarian South Moravian Region, the region has both qualitative and quantitative potential to significantly strengthen the sector. New perspectives are generally open particularly in connection with the requirements for substituting fossil fuels with alternative sources of energy. However, in the context of the Czech Republic the untapped potential of woody biomass is still very low and hence limited by the interest in the protection of nature and landscape (EEA 2006). Strategy documents of the region support the use of biomass in any form and in the future, it is planned to continue to increase the area of land with forest growth.

A high proportion of deciduous trees is specific for the South Moravian Region; their share in the total harvesting in the region is also significant (up to 1/3). As compared to conifers, the processing of wood from deciduous trees is technology specific. There are only a few firms specialized in processing this material in the Czech Republic; and this niche market can become a potential for the development of the region. The development of the processing industry directly in the region to eliminate long transport distances is a challenge for local entrepreneurs - assuming that it still remains without significant competition.

The exports of wood mass and the associated increase in energy efficiency and environmental load is a burning issue in the border region of Southern Moravia. To fulfil the postulates of sustainable forest management in a comprehensive concept, the processing and use of wood mass should be supported preferably on the local or regional scale. Exports should then only consist of finished products.

The first step in setting the appropriate orientation of the sector and proposing policy measures in this area is the analysis and evaluation of related characteristics and trends in the South Moravian forest management on a qualitative and quantitative scale. Valuable data for a holistic approach to regional forest management was acquired from in-depth interviews providing new insights and ideas across the spectrum of related disciplines.

2 Methodology

This paper focuses on forest management in the South Moravian Region. The quantitative part of the research is based on monitoring indicators set in a time sequence (for the years 1997, 2002 and 2007[1]); the indicators are commented on according to a development trend. The chapter also provides additional indicators illustrating the character of forestry in the region (the forest cover, degree of naturalness of forest stands, etc.). The data was mainly gathered from the Czech Statistical Office, from regional analytical documents and from regional professional institutions.
In the following project period, the qualitative analysis was also based on in-depth interviews with the *key regional players* in the forestry sector, which took place from January to March 2010. The

1 The methodology is based on the concept of the DERREG project (partial results of WP 3 'Environmental capital and sustainable development').

structure of the interviews was based on 30 questions, 15 of which were directed at the general assessment of the environmental background of the region and 15 questions were thematically focused on regional forest management in national and supra-national contexts. A list of institutions from which respondents came is annexed to this article. Generally, there were representatives of state forests, private owners, non-profit organizations, professional bodies and conceptual institutions. Interviews provided new attitudes and ideas in relation to the forestry specialisation spectrum and repositioning of the forestry sector within the regional development sector under the influence of the interaction of global, regional and local environmental discourses.

3 Theoretical background

Sustainable Forest Management (SFM) is a concept integrating a number of theoretical approaches to protecting forest stands. Spathelf (2010) also notes that the process of globalization and global change significantly affects the nature and interpretation of what is SFM. Generally speaking, it can be said that the main criteria for SFM are related to the ecological function of forest, such as the maintenance of bio-diversity, the maintenance of productive capacity, soil and water conservation, and carbon sequestration, but the criterion of multiple socio-economic benefits is also included (Fujimori 2001). Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual human needs of present and future generations.[2] SFM is management without irreversible changes (Cleveland 2001). According to Raison (2001), SFM has to be built up on local values and issues.

The issue is theoretically and methodologically addressed by many authors. The risk of developing the SFM concept particularly on the theoretical basis and the existence of many barriers to its introduction into practice is, however, very realistic. Peuttmann (2008) adds that facing the global change, it is questionable whether the main goal of forestry or forestry management should be sustainability or even resilience with sustainability as a by-product.

It should also be noted that most of the attention is naturally focused on forestry outside the European continent. The set-up criteria and principles are therefore designed very specifically. For example, at the global level the transport of wood mass and regional self-sufficiency are not addressed, which – to the contrary – should be of paramount concern at the European level. At a time when global economic processes affect the local economy, it is necessary to focus on stimulating local and regional markets. Of course, as mentioned by e.g. Blakely (2009), this cannot be done without the support of the local government. The situation in the South Moravian Region is – in this case – very favourable: the majority owner of commercial forests and the majority producer of harvested wood mass is the state.

The role of regions in national economies has significantly changed in recent times as a result of globalization and structural adjustment. Understanding these processes of change is crucial for undertaking regional economic analysis and in planning for regional development (Stimson 2006). Forest management will always be – as a producer of specific raw material located far from the end customer – dependent on exports. However the important thing is to maximize the value and

2 RESOLUTION H1. General Guidelines for the Sustainable Management of Forests in Europe Second Ministerial Conference on the Protection of Forests in Europe 16-17 June 1993, Helsinki/Finland.

involvement of businesses directly in the region (in the harvesting and subsequent processing).

4 Basic characteristic of the South Moravian Region

The South Moravian Region (NUTS III) is located on the southeast edge of the Czech Republic; it is a border region with Austria and Slovakia. In a more detailed division, we can distinguish further statistical units at the level of NUTS IV, the districts: Brno-City, Brno-Province, Znojmo, Vyškov, Hodonín and Břeclav (see Fig. 1 and 2).

The region covers 7,195 km^2 (9.1 % of the area of the Czech Republic), population density is 159.4 persons/km^2 – but in spite of this, the region still holds its significantly rural character, particularly in connection with the traditional agricultural production.

Fig. 1: Location of South Moravian Region within the Czech Republic

Fig. 2: Territorial division of the South Moravian Region

The southwest and western part of the region consists of plateaus with a mosaic of forest and agricultural land (with maximum altitudes up to 700 m a.s.l.), with a frequent occurrence of deep, mostly wooded river valley slopes. Towards the core of the region, the highland follows with peak altitudes above 700 m a.s.l. The region includes a significant karst area made up of Devonian limestones - Moravian Karst. In the south and northeast of the region, there is a zone of fertile lowlands with a predominantly flat topography. The western part of the region is then formed by hills and highlands at elevations ranging from 150-250 m a.s.l. Typical of this part are river floodplains with the remnants of native floodplain forests (see Fig. 3).

The prevailing climate in the region falls under the WARM 2 category; WARM 4 touches the southernmost part of the region. The northwest line of the region is predominately characterized by MILD WARM 4, 7 and 11. Characteristic climate features in those areas are included in Table 1.

The western part of the region consists mainly of Moldanubian granulites and serpentines. The central part of the region consists of deep igneous rocks (from granites to diorites). In the northern part of the region, Devonian rocks can be found (conglomerates, sandstones, limestones, slates); this area is partially touched by the Bohemian Cretaceous Basin (sandstones and marlites). The southern part is dominated by loess.

There is a wide range of soil types in the region including the most fertile. Agricultural land typically dominates over forest land; symptomatic is, however, its vulnerability to water and wind erosion. Woodland areas are mainly made up of brown soils (significantly in the eastern part of the region).
Table 2 provides a comprehensive overview of localities with a special protection regime (natural

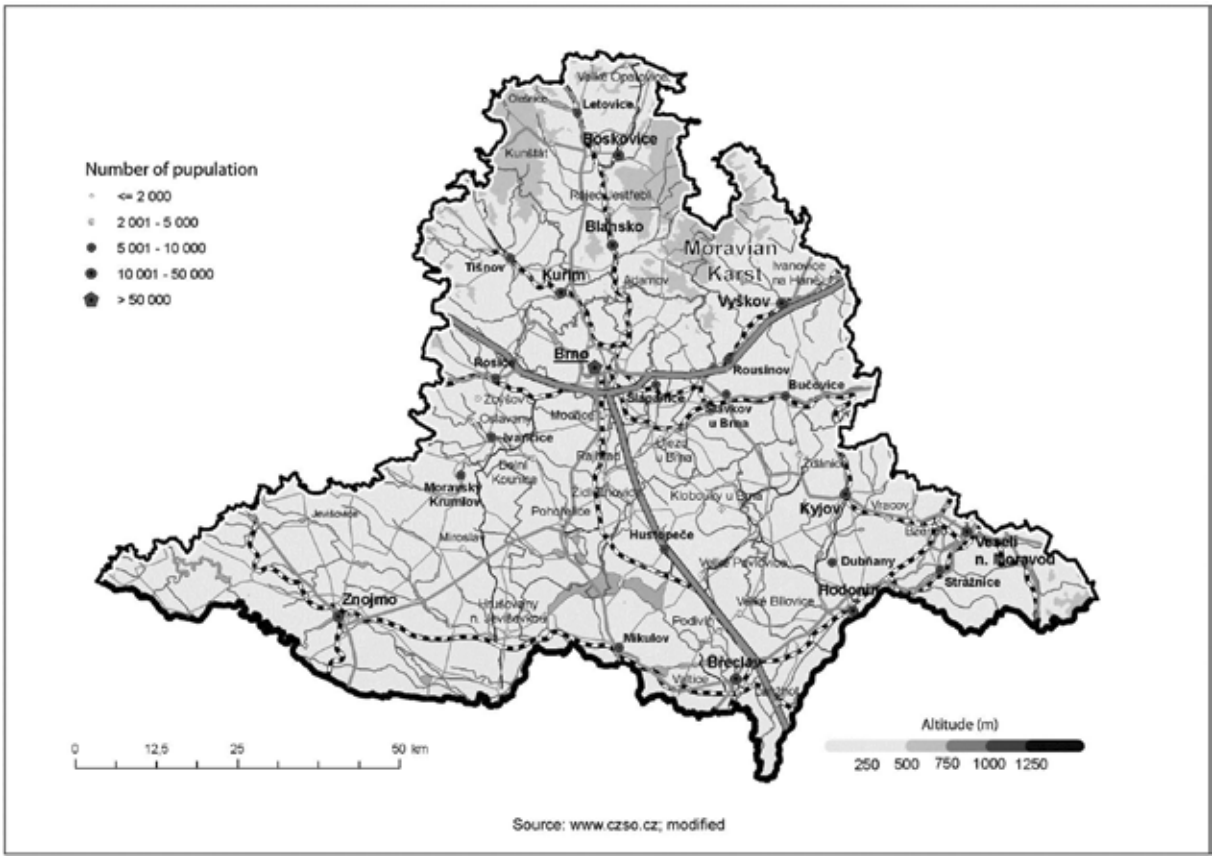


Fig. 3: Geographical map of the South Moravian Region

Source: www.czso.cz; modified

Tab. 1: Characteristic climatic features of selected climatic zones in the region (Quitt 1971)

Parameter	**Climatic zone**				
	W2	**W4**	**MW4**	**MW7**	**MW11**
Number of summer days	50–60	60–70	20–30	30–40	40–50
Number of days with average temperature of 10° C and more	160–170	170–180	140–160	140–160	140–160
Number of days with frost	100–110	100–110	110–130	110–130	110–130
Number of ice days	30–40	30–40	40–50	40–50	30–40
Average temperature in January	-2– -3	-2– -3	-2– -3	-2– -3	-2– -3
Average temperature in July	18–19	19–20	16–17	16–17	17–18
Average temperature in April	8–9	9–10	6–7	6–7	7–8
Average temperature in October	7–9	9–10	6–7	7–8	7–8
Average number of days with precipitation of 1 mm or more	90–100	80–90	110–120	100–120	90–100
Precipitation amount in the growing season	350–400	300–350	350–450	400–450	350–400
Precipitation amount in winter	200–300	200–300	250–300	250–300	200–250
Number of days with snow cover	40–50	40–50	60–80	60–80	50–60
Number of cloudy days	120–140	110–120	150–160	120–150	120–150
Number of clear days	40–50	50–60	40–50	40–50	40–50

Source: Quitt 1971

and cultural resources). The region also includes a military area, Březinka, which contains valuable sites in terms of science and landscape, but without the protection regime.
Almost 60 % of the total area is agricultural land, half of the region is then used as arable land

Tab. 2: Nature and landscape conservation in South Moravian Region

Characteristic	Number	Area (ha)	Characteristic	Number	Area (ha)
Strictly protected areas			Natura 2000		
National park	1	6,259	Bird areas	8	
Protected landscape area	3	35,512	Conservation areas of Community interest	195	
National nature reserve	18	2,811	*UNESCO Category*		
National nature monument	13	357	Biosphere reserve	2	30,000
Nature reserve	96	3,518	Area of natural wealth and cultural heritage	1	28,308
Nature park	20				
Nature monument	155	1,624	**Total area of valuable natural sites in the Region's total area:**		**approx. 18 %**

(the percentage of arable land is 83 %; it exceeds the aggregate value of the CR by 12 percentage points). The highest percentage of arable land can be found in the districts of Vyškov and Znojmo (over 95 %). Special agricultural crops (orchards, gardens, vineyards) 10 %, and meadows and pastures 7 %. Forest land covers 28 % of the area of the region, which is about 6 percentage points below the national average. Stable components of the landscape in total occupy about 40 % of the area of the region – with the distribution particularly in the northern and north-western part of the region and also locally in the south-eastern corner of the area, generally in the peripheries on the border with the Slovak Republic. Other areas such as built-up land and waters cover 12 %.

In terms of production area, agriculture is focused mainly on cereals, oilseed rape and sugar beet. Wine, fruit and vegetables are traditionally grown. More than 90 % of vineyards in the CR are located in the region. Viticulture is particularly developed in the district of Břeclav with 46 % of all vineyards in the country, but also in the districts of Hodonín and Znojmo and partly in Brno-Province. Only 2 % of agricultural land is farmed under organic farming (about 80 entities).

5 Quantitative analysis of forestry in the South Moravian Region

The South Moravian Region is one of the least wooded areas in the Czech Republic. The forest area at the end of 2008[3] reached 201,467 ha. Annually there is a slight increase of this area (in the order of dozens of hectares per year).

In general, the most wooded areas are located in the northern part of the region (especially in the

3 Czech Statistical Office data. Forest Management Institute has a record of approx. 205,000 ha of wooded areas.

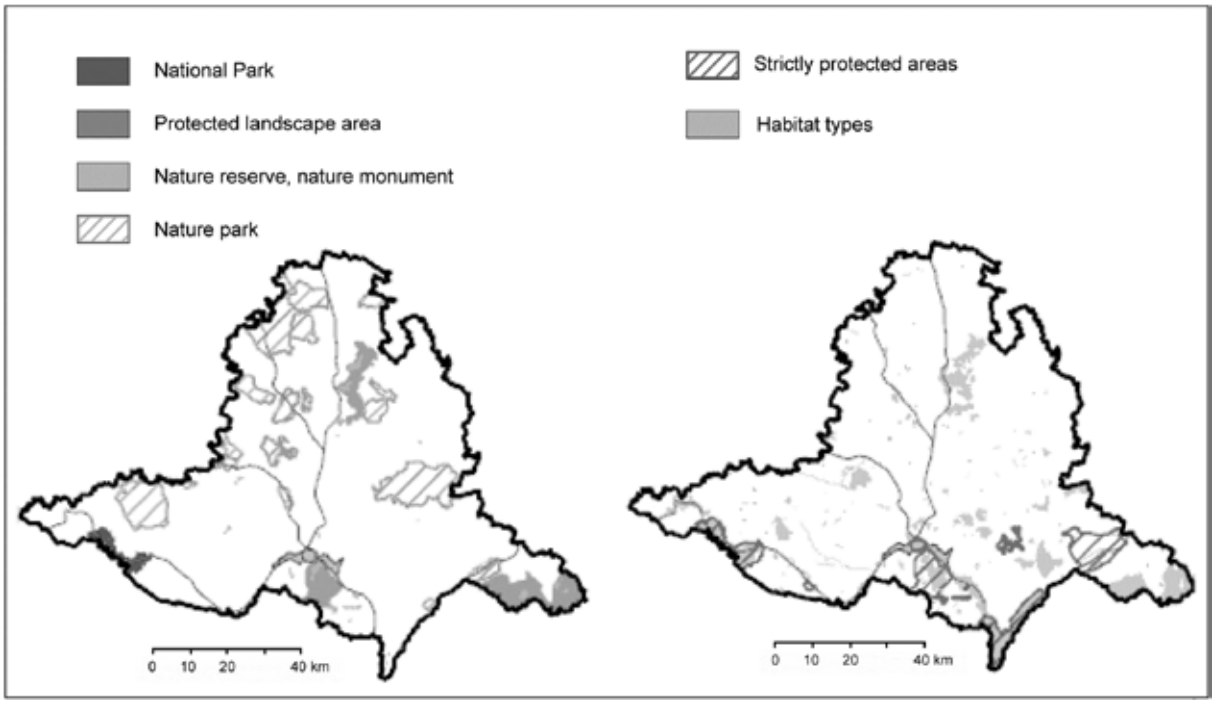


Fig. 4: Nature conservation and landscape protection in South Moravian Region
Source: Environmental status in South Moravian Region. CENIA 2008; modified

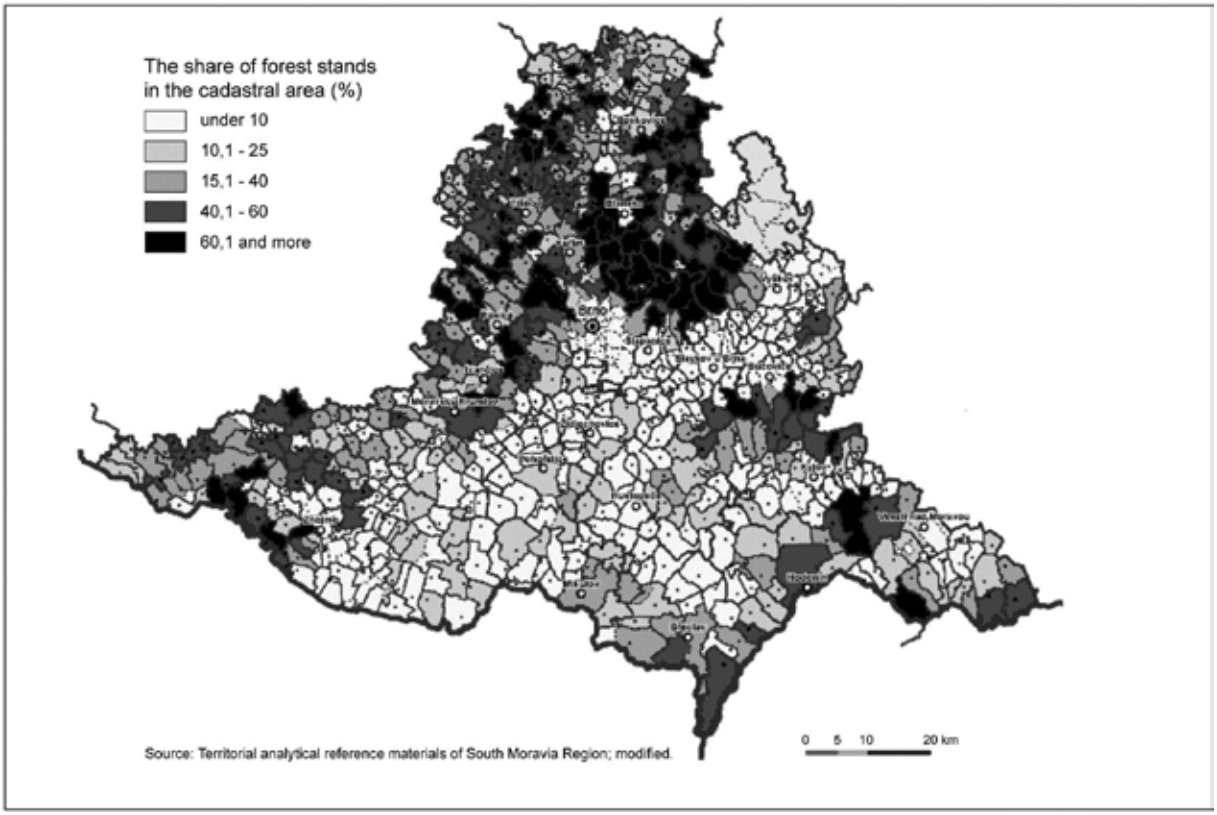


Fig. 5: The share of forest stands in the cadastral area
Source: Territorial analytical reference materials of South Moravian Region; modified

districts of Blansko and Brno-Province). Figure 5 shows that a major share in the cadastre is occupied by forest land in the northern part of the region to the south of the town of Blansko with the adjacent Protected Landscape Area of Moravian Karst. Increased forest cover is logically sympto-

matic for the majority of protected areas in the region. In the monitored area, there is a contrasting significant proportion of cadastral areas with a share below 10 % of forest land; many cadastres (especially in the southern part of the region) do not show any forest stands on their territory and their economic use is purely of agrarian nature.

The species composition of forest stands has been considerably changed in most of the territory of the South Moravian Region. Relatively well-preserved groups of forest stands can be found in the south-western part of the region (particularly at the confluence of the Morava and Dyje rivers, in the South-Moravian part of the White Carpathians Protected Landscape Area). In most cases, these are remnants of floodplain communities.

Dominant tree species are Norway spruce, pine and oak, with the overall proportion of coniferous and deciduous trees being balanced. An slight, inter-annual decline of oak in favour of beech stands is observed; the proportions of conifers tend to be stable.

In 2008, timber logging amounted to 1,030,525 m^3 (a slightly upward trend over the long term). More than two-thirds of the harvested timber were conifers (68 %); as compared to other regions, most deciduous timber (330,544 m^3) was harvested in the South Moravian Region both absolutely and relatively.

The health condition of forest stands particularly depends on the naturalness of their species composition, which has been changed in the region. The indicator of health status is the so-called defoliation. Its long-term value at the region's level was above the national average. In 2008, this status improved; but still represents the seventh highest value in the Czech Republic.

The greatest forest owner in the region is the state (¾ of the total area, a slight increase recently); more than a tenth of forests are in the hands of municipalities, and a similar share is accounted for by private owners and their cooperatives and communities. According to the statutory categorization, there are about two thirds of commercial forests, more than a third of special-purpose forests and 2 % of protected forests in the region (a tenth of the forests is part of strictly protected areas). The forest strategy of businesses is sustainable forest exploitation, assuring balanced wood-production and non-wood-producing functions of forests entrusted.

Tab. 4: Forest categorization and ownership (1997-2007)

Forest categorization		**Unit**	**1997**	**2002**	**2007**
	Commercial	*%*	60.1	61.6	63.0
	Protection		3.0	1.8	2.0
	Special purpose		36.9	36.6	36.0
Forest ownership	State	*hectares*	–	148,266	150,450
	Municipality		–	23,068	23,588
	Natural person		–	23,265	25,372
	Other owner		–	5,520	5,749

Source: Czech Statistical Office data

6 Qualitative analysis of forestry in the South Moravian Region

6.1 Key actors (short characterization of those interviewed)

The qualitative analysis of forestry in the South Moravian Region was based among others on interviews with key actors. There were altogether nine respondents; two of them represented the state administration in the region (Lesy České Republiky/Forests of the Czech Republic), two came from state nature conservation and landscape protection (national park administration and protected landscape area), two people were university lecturers in forestry (one of them an expert in forest law), one respondent represented the private sector focused on forest management planning, one person represented the non-profit sector (wood mass certification) and one represented a small private forest owner (up to 10 ha). Of the nine interviewed people, seven held managerial posts (6 of them in top management). All nine respondents were university graduates, five of them forest experts and two with a higher university degree.

6.2 Interview findings

The interviews with the key actors provided an expert view of the issue of forestry and the potential of its sustainability in the South Moravian Region. The experts maintain that the regional potential in the field of environment is generally good. South Moravian foresters, however, perceived problems concerning the contemporary chaotic sprawl of settlements, which does not only occur in the South Moravian Region but practically in the whole Czech Republic. The phenomenon leads to further landscape fragmentation. Similar reservations concerning excessively intensive agriculture were expressed by the respondents. In their opinion, the enhancement of the environment namely depends on the standard and scope of environmental education provided to the wider public. The interviewed experts assume that establishing new protected areas is as important as improving the management of the existing ones. Nevertheless, a larger part of forest experts believed that the protection of forest biotopes in particular suffices thanks to the high quality and stringent forest legislation.

The forest experts would, to certain extent, support the use of the regional environmental potential for developing the South Moravian Region. At the same time, however, they criticized the unmethodical spread of solar power plants on agricultural land. Within the South Moravian Region, they could see a certain potential for the development of renewable energy resources in biomass combustion (including post-harvest forest residues). The respondents could not see any significant shift of the primary sector towards sustainability. Examples of sustainable management mentioned by them were organic farmers or the training forest enterprise Masaryk Forest Křtiny as an organization unit of Mendel University in Brno, or forest management in some protected areas.

In connection with the sustainable exploitation of natural resources, the forest experts emphasized the promotion of soft forms of tourism and at the same time, they did not consider protecting natural resources to be obstacle for their sustainable utilization. In their opinion, the protection of natural resources should be ensured primarily by land use planning. Some of respondents maintain that landscape planning is limited by inadequate human capital, legislation, non-transparency of state administration and heavy lobbying. The key actors did not agree on whether and how the regional natural potentials are jeopardized. Some of them pointed out adverse influence of supra-national corporations; others believed that the regional natural potential is not endangered at all. Those

remaining could see a threat in excessively intensive agriculture and forestry. Experts from forest operations in particular pointed out that most often the problem of damage to nature is caused by undisciplined visitors to forests. A notable fact is that none of them mentioned any negative impact of industry.

According to the respondents, there are conflicts in the region between nature conservation on the one hand and exploitation of natural resources on the other. Likely the most discussed topic in the forest sector is an attempt to declare the Soutok as a Protected Landscape Area. The area is under management of the state enterprise Lesy České Republiky. The interviewed foresters from that organization rejected the decreeing of this PLA claiming that the currently provided area protection is sufficient. The respondents from nature conservation disagreed.

The Czech and Moravian community perceives South Moravia as an agricultural region and also characterised by viticulture. In spite of this, four of the nine respondents (non-profit sector, university lecturers and forest management planning) considered the forestry sector typical for the region, too. The majority of respondents saw the potential of regional forestry especially in the (financial) valuation of non-wood-producing functions of forest eco-systems or in the production of biomass for fuel. The forest experts noted gradual positive changes in the structure and quality of forest stands. In connection with the government policy of subsidies, there are cases in the Czech Republic of agricultural land being afforested, some respondents maintain that sometimes even on inadequate localities such as mesophilic meadows and pastures.

The national forest strategies currently in force (National Forest Programme) together with the forest legislation were considered by the respondents to be of high quality, also in relation to sustainability and anticipated climate change. Nevertheless, the respondents pointed out that these strategies are rather of a declarative nature and sometimes far from practice. Quite surprisingly, most of them had no knowledge of the regional strategy.

Forest stands in the Czech Republic are largely owned by the state and managed by the state enterprise Lesy České republiky. The forest management strategies of this state organization have long been criticized by many NGOs and politicians since most of the removals are exported as round wood (namely to Austria) without any value added in the region. In this phenomenon, the respondents saw one of the main impediments to the development of the forest sector in the South Moravian Region. The overwhelming majority of respondents claimed that a regional market for forest products does not exist. Adequate conversion capacities are not available either. If these conditions could be changed, the forest experts believe that the regional forestry would be competitive at least on a national scale. Similarly as mentioned above, the financial valuation of eco-system services would be a great help for the regional forest sector, paid for example in the form of subsidies.

Most respondents agreed that the fear of climate change had been reflected in forest strategic planning. At the same time, however, they warned that the translation of these strategies into practice may be complicated and insufficient (especially as far as changes in the species composition of forest communities are concerned).

In the Czech Republic, the rates of forest visitors or picking forest products (mushrooms, forest fruits, slash) are not in any way regulated, which was approved by all respondents. At the same time, however, only one respondent did not recommend to control attendance in forests. As to other non-wood-producing functions of the forest (climatic, water management, soil protection etc.), the respondents would appreciate some forms of subsidies or tax advantages for the owners

of forest properties. The key actors saw public education important for preventing damage to the forest. In addition to forest damage caused by forest product pickers, the key actors mentioned problems with horse riders, motorcyclists and quad bikes as well as problems with overpopulated game. Horse riders, motorcyclists and drivers of quad bikes are subject to repressive measures applied in cooperation with the Czech Republic police. The soft forms of controlling the attendance rate in the forest by means of nature trails and picnic areas were also mentioned. In connection with the problems of foresters caused by overpopulated wildlife, the respondents mentioned a need to change the legislation in this area as they could feel that the right to hunt is superior to justified interests of forest owners at present.

The interviewed forest experts were not able to find a consensus upon whether the situation in the regional forest sector had rather improved or rather worsened in the last twenty years. Only one respondent perceived the position of forestry in the region and country as better than twenty years ago. According to four respondents, the situation had worsened and for the remaining respondents the situation had remained the same. Mentioning the trend towards the worse, the respondents pointed out particularly the impaired management of forest stands in connection with the orientation of business entities only on profit and with the deteriorating prestige of people working in forestry.

A greater part (6) of the respondents considered the integration of nature conservation in forest management planning as sufficient (which is said to be considerable due to relatively good forest legislation). The interviewed respondents did not agree however in the case of the introduction of a common methodology to assess the natural and social functions of the forest, most of them pointing out the impracticability of the current methodology in practice.

Most respondents considered the South Moravian Region as having a sufficient potential for the development of environmentally-friendly management methods and alternative non-market activities. However, the respondents did find agreement as to forest certification. Five of them assumed that certification makes no sense in the conditions of the Czech Republic while two of them took certification for an indisputable competitive advantage. Other respondents had no sufficient knowledge of the issue.

Only two of the respondents believed that the region of South Moravia with the typical agricultural production could become a region with a more prominent position of the forest sector. The other respondents maintained that although the significance of forestry in the South Moravian Region is certainly expected to increase, it would never be able to reach the significance of agriculture. However, all respondents agreed that the area of forestland would increase and the quality of forest stands would gradually improve.

7 Conclusion

The project studied options for the regional development of rural areas in the South Moravian Region with a specific focus on forests and forestry. The research was based on qualitative and quantative analysis. This approach provided valuable information about the situation of the forest in the Brněnský region. The region is characterized by agricultural production and by a very low share of forest land. Forest land occupies 28 % of the area of the South Moravian Region, which is about 6 percentage points under the Czech Republic average. The species composition of the region has been markedly changed (coniferous species at the expense of deciduous species), which is also connected with the deteriorating health of stands which long ranged above the national

average; improvement has been recorded quite recently. Almost 75 % of the forest stand area is intended for commercial use with a dominant share of deciduous forests. The dominant share of deciduous forest can be found in the districts of Blansko and Vyškov. The largest forest owner in the country is the state represented by its establishment Lesy České republiky (Forests of the Czech Republic). This dominant enterprise in the forest resort, in its development programmes and strategic documents, declares the principles of sustainable development of forest management.

Key entities included in the research support the growth of the biomass industry, extension of areas with forest stands and the change in their species composition (even beyond the framework given by the statutory share of soil-improving species). Stakeholders consider the regional forest management as competitive. They only pointed out the problems in the organization of management in state forests (the majority owner). They include the sale of timber to logging companies (as opposed to more advantageous direct sale), the low support for regional entities in harvesting and wood mass processing, and the high share of timber exports.

According to the interviewees, the high share of exports and the boycott of local processors have resulted, in general, in the absence of the regional and local timber market and in the non-existence of local processing industry.

Possible impacts of climate change on regional forest management have been considered and integrated into the strategies of the key entities. The change of the forestry position as a sector is perceived rather as a change for the worse both within the region and within the national economy.

The respondents recommend the attendance in woods should be regulated (they are, however, aware of the absence of effective tools); they further recommend the introduction of a uniform methodology for the assessment of natural and all-society functions of forest stands. The respondents see a sufficient potential in the region for the development of environmentally-friendly forms of forest management. Certification systems in the conditions of the Czech Republic are not considered as very important.

It is also necessary to abandon the one-sided resort approach (foresters versus protectionists) and to seek a consensus in the solutions of key forest management issues in valuable natural territories.

Private businesses in the context of public tenders organized by the state establishment Lesy ČR (Forests of the Czech Republic) need to become more transparent and activities of forest contractors need to be systematically reviewed and supervised.

In conclusion, the established forms of public education should be further developed, namely those focused on the young generation, to increase awareness for the role of forests in the landscape and for the need of proper forest management, including the awareness of global aspects, above all the deforestation in the tropic areas. This is why a positive response is being recorded regarding activities such as the recently developed forest pedagogy, building of educational paths, issues of information and publicity materials, the series of educational spots with forestry themes on the commercial TV channels etc.

The results from the research shows that although issues of our forestry would be satisfactorily resolved sooner, or later, our attention and material assistance should also be directed towards global problems of the world, above all towards the problem of deforestation in tropical countries.

References

Blakely, E.J. (ed.) (1994): Planning local economic development: Theory and practice. Newbury Park, London, New Delhi.

Cleveland, C., D.I. Stern, R. Costanza (eds.) (2001): The Economics of Nature and the Nature of Economics (Advances in Ecological Economics). Cheltenham.

European Environmental Agency – EEA (2006): How much bioenergy can Europe produce without harming environment? No 7/2007. EEA Report. Kopenhagen.

Fujimori, T. (2001): Ecological and Silvicultural Strategies for Sustainable Forest Management. Amsterdam.

Peuttmann, J.K., K.D. Coates, C. Meissier (2009): A Critique of Silviculture: Managing for Complexity. Washington DC.

Quitt, E. (1971): Klimatické oblasti Československa.GÚ ČSAV. Brno.

Raison, J.R., A.G. Brown, D.W. Flinn (eds.) (2001): Criteria and Indicators for Sustainable Forest Management (IUFRO Research). Wallingford, New York.

RESOLUTION H1 – General Guidelines for the Sustainable Management of Forests in Europe. Second Ministerial Conference on the Protection of Forests in Europe 16-17 June 1993, Helsinki/ Finland.

Spathelf, P. (ed.) (2010): Sustainable forest management in a Changing World: European Perspective. Heidelberg, London, New York.

Stimson, R. J., R.R. Stough, B.H. Roberts (eds.) (2002): Regional Economic Development: Analysis and Planning Strategy. Berlin.

List of interviewees

Forests of Czech Republic, Regional directory Brno: Director (state forests)

Forest enterprise Znojmo: Director (state forests)

Lesprojekt Brno, Inc.: Director (private engineer´s office)

Landscape Protected Area Pálava: Head of Administration of Landscape Protected Area

National Park Podyjí: Head of Administration of National Park

FSC (Forest Stewardship Council) ČR: Director (NGO)

Mendel University in Brno, Faculty of Forestry and Wood Technology: Legal expert

Mendel University in Brno, Faculty of Forestry and Wood Technology: Professor

Small private forest owner: Individual

The Oberlausitz Region on the Way to a Sustainable Energy Region – New Energies, New Options, New Conflicts in a Traditional Energy Region

Michael Kriszan

1 Rural Areas – Playground or Dumping Ground?

According to Woods (2007) the principal challenge confronting local and regional government in Europe's peripheral rural regions for many decades during the twentieth century was how to reverse the trajectory of decline. "Government struggled to arrest depopulation and economic recession, attempting to promote economic development, encourage in-migration, and improve the quality of life for the remaining population. To this end they tended to support major infrastructural projects and major new employment opportunities, including 'noxious' activities unwanted elsewhere such as nuclear power stations, waste dumps, prisons and quarries, placing economic benefits above environmental costs (Woods 2005b). Although the pursuit of this modernization discourse brought rural governments into conflicts with early countryside conservation groups […] the strategy was generally supported by the rural population and the rural political organizations" (Woods 2007, pp. 31f.).

EPP and Whitson (2001) have observed in rural Canada that globalization has produced a new rural-urban division of labour (Woods 2007, p. 28). In the context of this new division the countryside "is coming to serve two new and very different purposes – playground and dumping ground – as the traditional rural economy declines" (Epp and Whitson 2001, p. xv). Regions that are able to attract tourists or lifestyle in-migrants thrive as playgrounds, but, "in more remote or less obviously scenic locations, meanwhile, where land is cheap and city people seldom come, rural communities are now becoming dumping grounds: sites for the messes created by city garbage, by massive resource developments, by low-wage industry, and by intensive livestock production" (ibid.).

An example for a region that tries to turn from a former 'dumping ground' into a new 'playground' is the Oberlausitz region (*Oberlausitz-Niederschlesien*) in the eastern part of the Free State of Saxony. In the past, the economic development of this peripheral rural region was characterized by agriculture and, in the period of industrialisation, by textile industry and brown coal mining. These traditional industrial branches collapsed after the political turn in 1989 and could be sustained only to a small degree. Today the legacy of the industrial activities in the Oberlausitz region is widely reflected in post-industrial landscapes. 'Lunarscapes', untapped and destroyed production sites are an expression of the legacy displaying the area as a traditional region of energy production (Hochschule Zittau/Görlitz 2010, p. 2). On the other hand, the Oberlausitz is developing towards a modern and ecologic energy region, using renewable energy sources such as wind, hydropower, biomass and solar power. Exhausted opencast mines are cultivated and developed to become attractive tourist and recreation areas – the so-called Lausitz Lake District (*Lausitzer Seenland*).

The following chapter will outline the transformation of the Oberlausitz region from a traditional towards a sustainable energy region and the development of the Lausitz Lake District as new pillar of the regional economy. It will also shed light on problems, conflicts, risks and chances that result from the growth of the renewable energy sector on the one hand and the establishment of the lakeland area as holiday destination on the other.

2 Energy Production and Energy Supply in Rural Regions – Past, Present and Future

In the course of the energetic turn people have become more and more aware of the fact that the production of energy has significant impacts on land use. Images of large-scale power plants, opencast mines or high voltage power lines but also wind farms and solar parks are widely known expressions for the increasing demand for energy. However, these facilities are leading to soil sealing and thus to a loss of productive land. The need for land for energy infrastructure is constantly increasing and, in some regions, even dominating the scenery (Haberl 2006, p. 111).

Currently, we find ourselves in a process of transition from the industrial phase which was dominated by fossil energy sources to the post-industrial phase (Brücher 2008, p. 13). The latter is characterized by the utilization of renewable energy sources aiming at the substitution of the limited fossil energy sources and, simultaneously offering an alternative for nuclear power (Brücher 2009, p. 180). Haberl (2006) perceives the energetic turn as a challenge which, as far as its dimension is concerned, can be compared to the transition from agrarian to industrial production schemes. According to Haberl the effects on land use will be similar to those of the industrial revolution (Haberl 2006, p. 115).

Before fossil energy sources became the primary base for power generation in rural areas, the supply with raw materials for energetic purposes was organized in a decentralized manner: mills were powered with water and wind and thus were dependent on specific locations. Biomass – especially wood – was the backbone for energy supply. On a large scale, forest owners (for example noblemen or monasteries) secured the supply of wood for towns and businesses. On small scale, everybody had to take care for himself. Consequently, self-supply with energy was common in most parts of Western European rural areas until the middle of the twentieth century (Rieser 2006, p. 24). Agriculture and forestry were thus the main contributors for endogenous regional development.

This decentralized way of energy supply was partially substituted by the utilization of centrally organized fossil energy sources in the interwar period, and, almost fully after 1945. As a consequence, rural areas became dependent on market mechanisms. Furthermore, the use of agricultural land shifted towards an intensified food production which, in turn, contributed to a faster growth of the world's population.

The search for alternative energy sources started already in the 1960s (Rieser 2006, p. 25). Alternative energy sources should be renewable, produced in a decentralized fashion and be available everywhere. The idea of this movement is to act against the finite nature and instability of fossil fuels, the dependence on few multinational companies and the political pressure exerted by energy-exporting countries. Renewable energy sources are solar, wind and hydro power as well as biomass – those sources which secured the energy supply already in the pre-industrial phase, although on a technically primitive level. However, it is this return to traditional energy sources which assigns a new role to agriculture and forestry (ibid.).

Until 1990 the use of renewable energy sources in Germany was based for the most part on hydropower and the traditional utilization of biomass. The enacting of a new law regulating the power input in 1991, the so-called *Stromeinspeisungsgesetz*, induced the growth of the renewable energy sector. At the beginning, the development of wind energy was supported intensively. The efficient utilization of biomass for electricity and heat generation as well as the increased use of other renewable energy sources such as solar power were promoted in the following years (Mengel et al. 2010, p. 23).

The generation of renewable energy offers the opportunity to organize energy supply on a regional level. Especially rural areas can thus free themselves from the dependence on foreign energy suppliers and organize their energy supply self-determined. The regional added value can thus be enhanced as financial means remain in the region and can be invested for regional development (Rieser 2006, p. 25).

In former times, water and wind were used exclusively for powering mills. Today, they serve for the most part to generate electricity. Especially small power plants which are operated by regional actors are of importance for regional development, particularly in peripheral regions. Another expanding form of decentralized power generation is the utilization of solar power for the production of electricity. Solar panels can be easily installed on roofs of private or industrial buildings, dumps etc. without affecting the scenery or using new areas.

According to Rieser (2006) the return to the utilization of regional energetic potential offers new chances for the development of rural areas. The regional economy can gain new impulses, especially when production sites for technical equipment will arise (Fig. 1). The economic independence will be enhanced and dependency on global mechanisms will be reduced. Furthermore, structures can be adapted to local and individual needs. Especially small-scale installations do not disturb the scenery and can be operated ecologically (Rieser 2006, pp. 28f.).

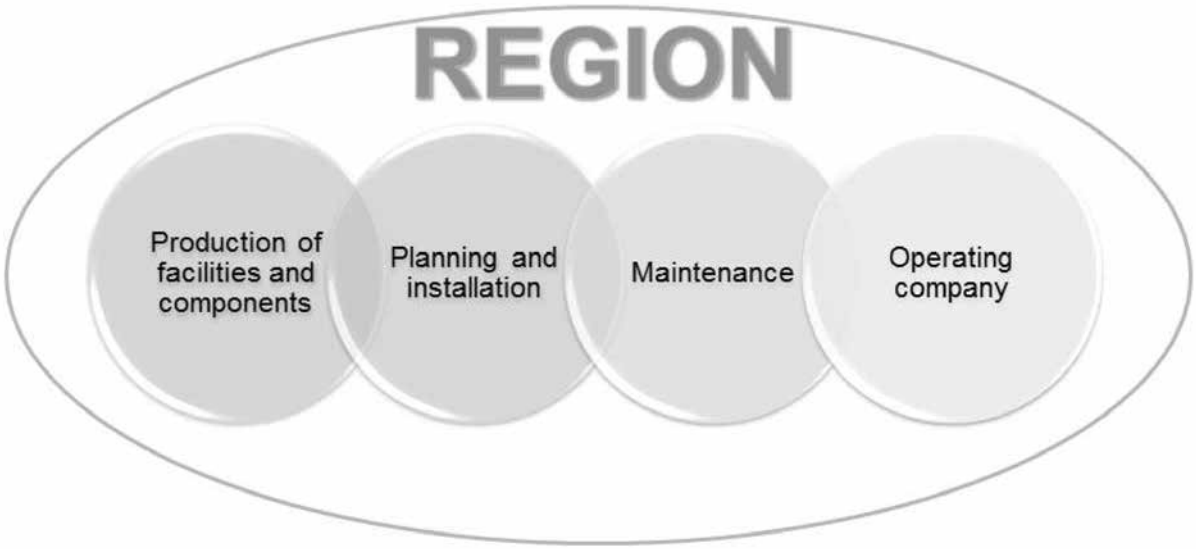


Fig. 1: Regional value added chain based on renewable energies
Source: own design

However, Brücher (2008) notices that even ideal decentralized supply systems will have a marginal role for the development of rural areas. Especially the bioenergy sector will be stepwise integrated in the centralistic-monopolistic system of agribusiness and large companies. Bioethanol for example has become a good that is produced and transported worldwide. The producers of bioethanol will – accordingly to oil producers – be located in third world countries, not at least because of their large land reserves and a higher productivity of biomass (Brücher 2008, p. 20). From a realistic point of view, there will be no entrance to a renewable and an exit from the fossil energy system. It is most likely that both systems will be intertwined generating effects that will bring profit to both of them (Brücher 2009, p. 251).

High prices for alternative energy sources are one of the main reasons for the low acceptance of

the population. Although the people are welcoming innovative and new ways of power generation, they do not want it 'in their backyards'. "On a more local scale, NIMBY resistance to new energy supply facilities has grown rapidly, making their location in some areas almost a political impossibility" (Owens 1990, p. 54). A reason for the people's neglect might be the fact that they are used to power plants in special areas which are remote to their living areas, but they do not want to have installations nearby their houses (Brücher 2009, p. 249).

According to Brücher (2009, pp. 182f.) there are several obstacles hindering the development of the renewable energy sector:

- The tradition of the industrial phase to build large-scale plants can be also observed in the post-industrial phase: wind farms and solar parks are realized in large dimensions and thus evoking the resistance of the local population.
- Despite their 'clean' images even renewable energies have negative ecological and climate damaging effects: large-scale wind farms for example affect the fauna and the utilization of biomass emits methane gas and pollutes water.
- A special obstacle is the centralistic-monopolistic structure of the energy sector as legacy of the industrial phase. Most probably, these structures will be maintained, so that decentralized small structures will not have the chance to survive.
- Obstacles are also built by politics: laws and regulations are passed by states and supranational institutions like the EU, but they have to be implemented on local and regional scale by local and regional actors.

3 Economic Development of the Oberlausitz Region

The Oberlausitz region (*Oberlausitz-Niederschlesien*) consists of the two districts (*Landkreise*) Bautzen und Görlitz that were formed in 2008 (Fig. 2). The region is home to 592,000 inhabitants (as of December 2011, Freistaat Sachsen 2012a) and covers an area of about 4,500 km^2. 60 % of the population live in peripheral rural areas and a further 35 % in rural areas of higher population density. Only 5 % of the population live in the suburban part of the Dresden Urban Region.

The largest cities in the region are Görlitz (55,400 inhabitants), Bautzen (40,500 inhabitants) and Hoyerswerda (36,700 inhabitants) (as of December 2011, Freistaat Sachsen 2012b). The Oberlausitz region experienced significant population losses in the last decades. Reasons for the population decline are birth deficits and out-migration. Both tendencies are linked to the deep economic changes which started in the 1990s (Staupe 2007, p. 10). Since German reunification in 1990 the region's population has declined by 155.000 or a relative loss of about 20 %. The net out migration slowed down in recent years, but the age selectivity of the migrants is still worrying as especially younger and well-educated people – in particular younger women – are leaving the region. A consequence of this development is an aging population (Heinrich 2007, p. 25).

The founding of the German Democratic Republic (GDR) in 1949 and the membership of the GDR to the Council for Mutual Economic Assistance (Comecon) meant a new phase of economic development in the Oberlausitz, especially in the form of an intensified brown coal mining and processing in the region. Though the centre of the mining activities and the associated energy production was located in the Niederlausitz, that is to say north of the Oberlausitz region, the industry has left its mark on Eastern Saxony. The GDR brown coal industries required a large number of qualified workers that were drawn to the region from all over the GDR because of good employ-

ment opportunities (Friedrich 2003, p. 17). Towns like Weißwasser and Hoyerswerda grew enormously in size, mostly by the construction of socialist style large peripheral housing estates.

Fig. 2: Location of the districts Bautzen and Görlitz

Mining industry and related branches like machinery, maintenance or transport occupied a disproportionate share of the work force and left their mark on the regional economy. Until 1989 the economic profile of Eastern Saxony was dominated by the following branches:

- brown coal mining and processing,
- energy production,
- textile industry,
- machine building,
- glass and ceramics,
- construction of vehicles,
- wood processing.

At the end of the 1980s it was obvious that the machinery, the industrial premises and the technical and transportation infrastructure of the region were outdated and lagged behind the standards of western industrial countries (Friedrich 2003, pp. 16f.). The Economic and Monetary Union and the introduction of a market economy that accompanied the reunification of Germany in 1990 consequently led to drastic changes in the economic structure of the region. Many enterprises were not competitive under market conditions and had to cease their operations. Job losses were especially high in the first years after transformation in the early 1990s.

A direct consequence of the closing down of many enterprises was a significant rise of unemployment. Many workers who had come to work in the region left again during that period. The sharp drop in manufacturing employment was only partially compensated for by a growth of jobs in the service sector (Postlep 2004, p. 129). New companies that settle in the region are oriented towards a high productivity and employ only a fraction of the workers that the old industrial activities required Friedrich (2003, p. 21). Consequently, unemployment remains high in the Oberlausitz.

The transformation of the 1990s had massive and long-lasting effects on the structure of economy of the Oberlausitz region. The most important economic activities with the highest number of jobs are now food processing, agriculture, machine-building industry, steel construction and vehicle production (Empirica 2006). Today the mining industry only employs a small portion of the former work force in the Oberlausitz. Friedrich (2003, p. 20) sees a positive sign in the fact that industrial cores were renewed and stabilized in the region in spite of the economic turbulences. Examples are the following locations and firms:

- Bombardier Transportation GmbH (branch: vehicle production/location: Bautzen, Görlitz),
- Vattenfall GmbH (branch: energy production/location: Boxberg),
- Siemens AG Power Generation (branch: machine-building industry/location: Görlitz),
- Trumpf Sachsen GmbH (branch: machine-building industry/location: Neukirch),
- SSL Maschinenbau GmbH (branch: machine-building industry/location: Eibau).

The Oberlausitz region still has a highly differentiated economic structure on a sub-regional level:

- Although the majority of the open pit mines in Saxony have terminated their operation, the landscape and the economic structure of the North and Northeast of the region are still influenced by the legacy of coal mining. This part of the region experienced the most dramatic job losses. The landscape of the former open pit mining area is currently transformed into a lake district (*Lausitzer Seenland*) that is hoped to position the region as a tourist area in the long run.
- The economy of the South and the Southwest of the region is dominated by a mix of small and medium-sized enterprises. Highly specialized firms can be found especially in textile industry and machine engineering.

The Oberlausitz still has many traits of a lagging region. Indicators of a structural weakness of the regional economy are for instance, the low rate of research and development activities, the dependency of many larger firms on external decision making (branch plants), the low export rate and the low rate of new firm openings (Ifo Dresden 2005, p. 8 based on Danielzyk and Zettwitz 2001).

Like in other regions the development of the Oberlausitz is increasingly determined by global processes. It is an advantage that Saxon firms can operate on global markets but it is also a problem that they have to face global competition. Staupe (2007, p. 12) argues that lagging regions with weak economic structures will not be able to sufficiently profit from globalization tendencies but may loose further ground to the economic core regions. This is a threat that the Oberlausitz region has to face as well.

4 Fossil Energy Production in Saxony and the Oberlausitz Region

4.1 Background – Brown Coal Mining in Saxony

Saxony has a long tradition in brown coal mining that goes back to the end of the 19th century when the demand for energy had risen constantly due to industrialisation. The state disposes of large brown coal deposits that are concentrated in the coal-mining-district of Lusatia (*Lausitz*) and around the agglomerations of Leipzig and Halle (the so-called Central German coal-mining-district) (Fig. 3). It is projected that these deposits will provide enough brown coal for the current century.

Brown coal was the GDR's main source of energy and thus of great importance for the national economy. Between 1945 and 1990 mining and use of brown coal was intensified to cover the rising industrial demands for energy. The exploitation of seams of brown coal through strip mining involved massive changes for landscape and nature in the mining regions: entire villages disappeared, surface and groundwater were contaminated and the water table dropped by more than 30 metres in some places.

Fig. 3: Deposits of brown coal in Saxony

Until the collapse of the state in 1989, the GDR was the world's largest producer of brown coal, mining more than 300 million tonnes from 33 open pits per year (Mudroch et al. 2002, p. 4). However, brown coal is not only detrimental to the land; also the process of converting coal into energy produces large amounts of atmospheric pollution. Due to the drive for economic growth during the centrally planned economy of the former Soviet Union, energy-intensive industries were given priority, not only in the GDR, but in all economies of the Eastern Bloc. As the energy consumption grew and prices for imported oil increased, pressure mounted to become energy self-sufficient. To meet this objective, the GDR could only rely on its domestic resource – brown coal.

The combustion of brown coal covered the high demand for energy, but it also affected the natural environment and the quality of life in an extremely negative way. The air pollution reached disastrous dimensions: the border region around the city of Zittau for instance was called the "black triangle" (*Schwarzes Dreieck*).

The reunification of both German states laid the ground for a fundamental modernisation of the mining economy in the former GDR. Outdated and inefficient power plants were shut down and replaced by new and efficient power stations. Large investments were made to restructure the whole energy sector in order to improve its efficiency and its environmental sustainability. Furthermore, alternative sources of power generation became more and more important (Fig. 4). Wind farms, solar parks and biogas power plants were installed throughout Saxony to increase climate-friendly energy production.

Although brown coal mining has been subject to restructuring and modernisation (especially with regard to environmental compatibility and considerate exploitation of land after the active phase of mining), it is still linked to a number of environmental and social problems. Currently, most conflicts arise from the devastation of landscapes, interventions into water and soil balances and the removal of settlements.

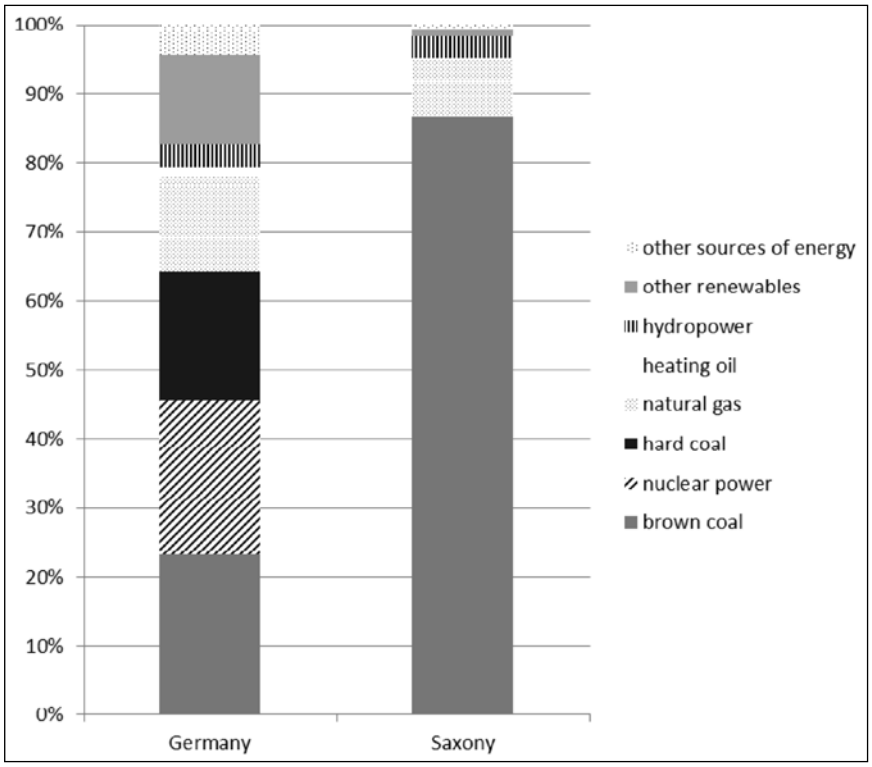


Fig. 4: Gross electricity production in Germany and Saxony 2010

Source: own design according to AG *Energiebilanzen* e.V. 2012 and *Statistisches Landesamt Sachsen* 2012

4.2 Brown-coal Opencast Mines Nochten/Reichwalde and Power Plant Boxberg

Today, the Vattenfall GmbH[1] , a subsidiary enterprise of the state-owned Swedish energy company Vattenfall AB, operates the two open-cast mines Nochten and Reichwalde as well as the power plant Boxberg within the Oberlausitz region (Vattenfall 2012a) (Fig. 5). The brown coal opencast-mine Nochten is located in the north-eastern part of Saxony nearby the city of Weißwasser. Since 1973 the so-called second Lusatian seam has been exploited. This seam has an average thickness of 9 to 15 meters and is situated in a depth of 65 to 100 meters. Additionally, the first Lusatian seam has been exploited since 2006. It is situated in a depth of 20 to 40 meters and has an average thickness of 2 to 5 meters. Altogether, about 18 million tonnes of brown coal are exploited at Nochten per year. As the first and second seam are located under massive soil layers, a lot of mine spoils have to be removed. The proportion of mine spoil to coal amounts to 7:1 (Vattenfall 2012b).

Fig. 5: Brown-coal opencast mine Nochten and power plant Boxberg
Photo: M. Kriszan

The second mine still under operation within the Oberlausitz region is the brown coal opencast-mine Reichwalde. The exploitation of brown coal in Reichwalde had already been stopped in 1999 due to low efficiency. In 2007 Vattenfall began to prepare the recovery of the opencast-mine, and at the beginning of 2011 the exploitation of brown coal has been restarted. Altogether, coal extraction in Reichwalde is planned for a time period of about 30 years.

1 formerly Vattenfall Europe AG

Already in 1968 the construction of a power plant nearby the village Boxberg has started. In the 1970s the plant, which had an installed power of 3,520 MW, started its operation. Boxberg had been the biggest brown coal power plant in Germany for several decades (1970s to 1990s). During the 1990s the old block-units were closed (12 x 210 MW block-units) or rebuilt (2 x 500 MW block-units). Since 2000 a new block-unit with an installed power of 900 MW has been in operation. From 2007 to 2012 a further block-unit (675 MW) was built and put into operation (Vattenfall 2012c). Both newly built block-units belong to the most modern and most efficient brown coal power plants in the world.

Compared to earlier times the economic importance of mining and power-generation decreased. Nevertheless, Vattenfall is still one of the largest enterprises in the region employing about 1,200 workers; and moreover, a lot of ancillary industries and services are located in the northern parts of the Oberlausitz.

4.3 Lausitz Lake District (Lausitzer Seenland)

Connected with the recultivation of the former brown coal mines a new holiday region called 'Lausitzer Seenland' is currently developing in the North-east of Saxony (*Oberlausitz*) and the South of Brandenburg (*Niederlausitz*). By flooding former brown coal mines 23 artificial lakes will be created with a total water surface of about 350 km2. This new holiday region will be the largest artificial lake district in Europe, and the whole area around the *Lausitzer Seenland* is expected to become an attractive tourist region and holiday destination for national and international visitors as well (Zweckverband Lausitzer Seenland 2012) (Fig. 6).

The new lakeland area will compete with traditional German holiday regions, for example the Mecklenburg Lake District (*Mecklenburger Seenplatte*). Hence, it will be important to develop unique features at each lake in order to improve the attractiveness for different tourist groups (e.g. adventurers, sportspeople, families with young children, elderly people). Today, only a few lakes have already reached the final water-level. In a few years, when the process of flooding will be completed, ten lakes will be connected by navigable channels.

It is planned to create an attractive lakeland that can be used for different types of sports-orientated leisure activities. In this context a lot of investments into the local infrastructure are necessary. Beaches, marinas and lakeside promenades have to be built as well as camping sites, restaurants or centres for water skiing and boating. Currently, first projects are already realized or in the phase of realization. Several larger tourism projects such as the construction of hotel complexes and golf courses are planned to attract especially rich visitors. Until now the realization of these large-scale projects has not been started due to a lack of private investors.

Many regional stakeholders expect that the tourism sector will become an important economic sector in the Lausitz region (*Oberlausitz* and *Niederlausitz*) connected with the creation of new jobs. Some successes can already be noted; a lot of yachtsmen brought their sailing boats to the lake district for instance. However, there are also some critical aspects that have to be considered with regard to the future economic development of the *Lausitzer Seenland*:

- The development of the lakeland requires a lot of time (several decades).
- The tourism sector will not be able to replace the industrial sector as main regional employer and to absorb all labour force displaced by mining and energy industries.
- Regional workforces have to deal with new challenges in the tourism service sector.

- The region is far away from bigger cities such as Berlin and therefore not attractive for day trips.
- Necessary tourism infrastructure (hotels, railway connections, public transport system etc.) is still missing.

Against this background the expectations of some regional stakeholders seem to be excessively optimistic. Nevertheless, the tourism sector can become an additional economic pillar at least for some parts of the region.

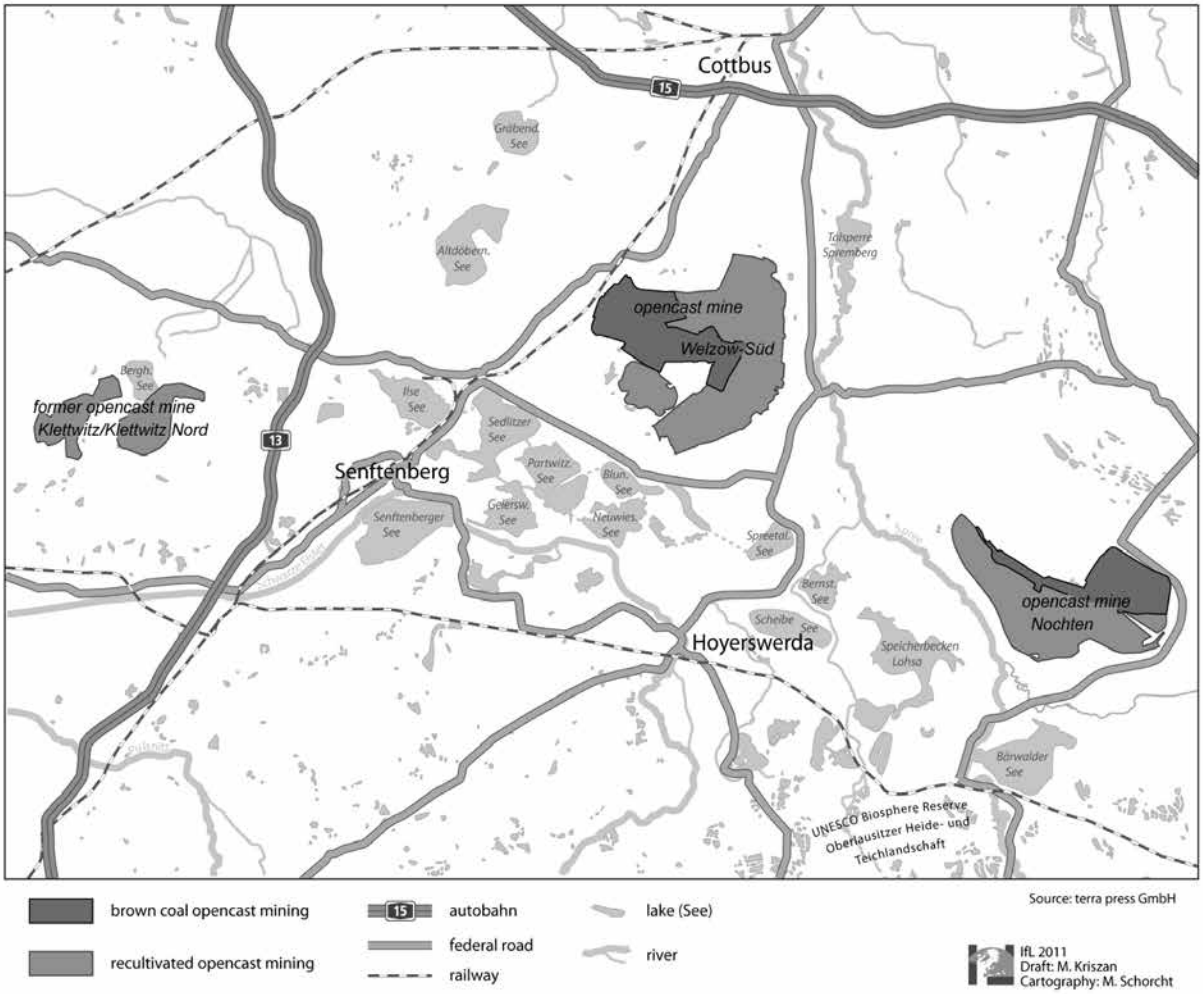


Fig. 6: Lausitz Lake District *(Lausitzer Seenland)*

The recultivation of former brown coal mines and the restructuring of landscapes provide a lot of opportunities and development potentialities also for the conservation of nature. Large, connected areas can be provided for nature protection, and a lot is done to transform the mining areas into natural spaces. Until now nature development is not affected negatively by human activities due to a relatively small number of tourists coming to the region. However, there are conflicts between nature protection and tourism already today resulting from the fact that many protected areas are located in landscapes that are attractive for the tourism sector as well.

Many restoration and cultivation activities still have to be carried out. The Corporation for the management of mining areas in the Lausitz region (*Lausitzer und Mitteldeutsche Bergbau-Verwal-*

tungsgesellschaft mbH, LMBV) is responsible for the organisation and realization of these activities. With regard to environmental aspects the contamination of lakes with pyrite as consequence of a rising water level is currently a big problem. This contamination activates chemical processes resulting in an acidification of the water.

5 Renewable Energy Production in Saxony and the Oberlausitz Region

The development of renewable energies in the Free State of Saxony during the last decade has been very positive. During the period 2000 to 2010 the share of renewable energies in Saxon gross electricity consumption increased from 3.9 % to 15.3 % (SAENA 2012a) (Fig. 7). The State Government of Saxony intends to increase the share of renewable energies to 24 % by 2020 (Freistaat Sachsen 2009).

Renewable energies have become an important element of the economy of Saxony. They generate economic growth, enhance the regional value added and create new jobs. In 2010 about 11,000 new jobs were created and the total turnover in the renewable energy sector amounted to EUR 3.8 billion (SAENA 2012a).

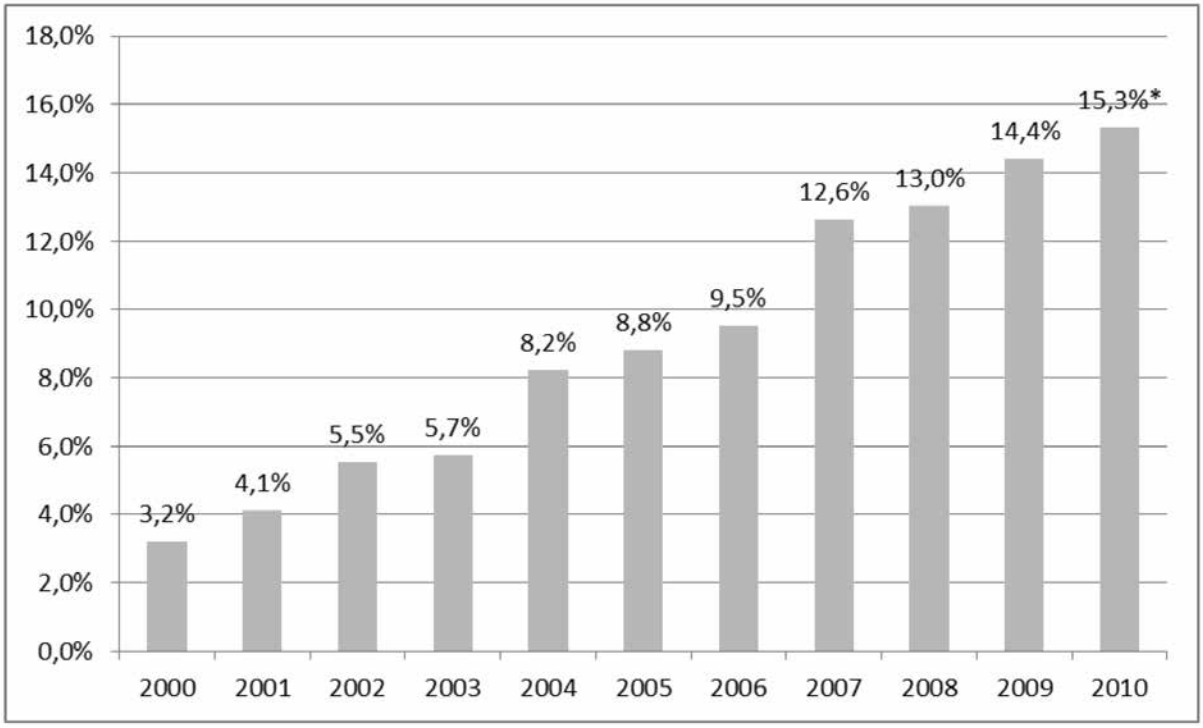


Fig. 7: Share of renewable energies in Saxon gross electricity consumption between 2000 and 2010 (* preliminary estimate)
Source: *SAENA* 2012a

The particular forms of renewable energies differ from each other with regard to their purpose – the production of electricity and heat. Wind power plants, photovoltaic power plants and hydropower plants are only generating electricity. The energetic use of biomass in combined heat and power stations or biogas plants produces electricity and heat, whereas geothermal power stations and solar thermal plants are only producing heat. Particular trends of the specific renewable ener-

gy sections wind energy, hydropower, solar power, bioenergy and geothermal power are outlined as follows:

5.1 Wind Energy

The era of wind energy in Saxony started in the year 1992 when the first five wind turbines were installed in the Ore Mountains (*Erzgebirge*). Since 1992 the wind energy sector has increased rapidly. By the end of 2010, the number of installed wind power plants amounted to 817 (with an installed power of 957 MW) (SAENA 2012a). In the year 2010 about 1,335 GWh of electricity were produced by wind power plants in Saxony. This corresponds to a share of about 8 % of the Saxon net electricity consumption (SAENA 2012b). Today, wind energy is the leading renewable energy sector in Saxony and it will maintain this status in the medium term (Fig. 9a).

Large parts of the regional potentials for wind energy have already been exhausted and only a few locations for the installation of wind power plants are still available. As a result 'repowering' – the replacement of old wind turbines – will become more and more important to increase the performance of this particular renewable energy sector also in the future. In the middle and in the long term it will be possible to cover about 12 % of total power need in Saxony by repowering and the construction of new wind power plants.

5.2 Hydropower

At the moment the number of hydropower plants in Saxony amounts to 295 with an installed power of 87 MW. In the year 2010 about 320 GWh of electricity were produced by hydropower plants. Correspondingly, a share of about 1.4 % of Saxon net electricity consumption could be covered by hydropower (SAENA 2012c). Hydropower plants are predominantly concentrated at rivers – hence, the possibilities for a further expansion of this specific renewable energy sector are limited in Saxony.

5.3 Solar Power

The first solar power plant in the Free State of Saxony was already built in the year 1990 in the village Oberseifersdorf near the city of Zittau (VEE Sachsen e.V. 2008). In the year 2010 alone photovoltaic power plants with 215 MWp were newly installed in the Free State. Thus, the installed photovoltaic power amounted to 502 MWp by the end of the year 2010. In the same year about 330 GWh of electricity were generated by ca. 16,800 photovoltaic power plants (SAENA 2012a) (Fig. 9c).

The draft of the new Energy and Climate Programme for Saxony (*Entwurf des Energie- und Klimaprogramms Sachsen*) aims at enhancing the share of renewable energy sources in the annual power consumption up to 30 % in 2020 (SMWA 2012). The contribution of solar power will amount to 1,700 GWh respectively 1,900 MWp installed power. It can be expected that the implementation of this programme will lead to the development of enormous potentials especially in the photovoltaic sector.

In 2010 about 40 % of all installed solar power was located in the open landscape. To avoid a further consumption of open areas, the legislative authorities have restricted a further designation of open spaces. Instead dump terrains, industrial and military sites as well as roofs should be increasingly used for photovoltaic purposes (SAENA 2012d).

5.4 Bioenergy

The utilisation of biomass for energy production makes it possible to cover a large share of future energy supply in rural parts of Saxony. Already today renewable energies have become a new and lucrative source of income, especially for agricultural enterprises (Fig. 8). The number of power plants fuelled by biomass amounted to 328 (with an installed power of 189 MWel) in the year 2010. According to information of the Saxon Energy Agency, 1,205 GWh of electricity produced from solid, liquid and gaseous biomass were fed into the public grid in Saxony in the year 2010 (SAENA 2012a) (Fig 9b).

While statistics about the production of electricity from biomass power plants in Saxony are available, there is a lack of information about the production of heat.

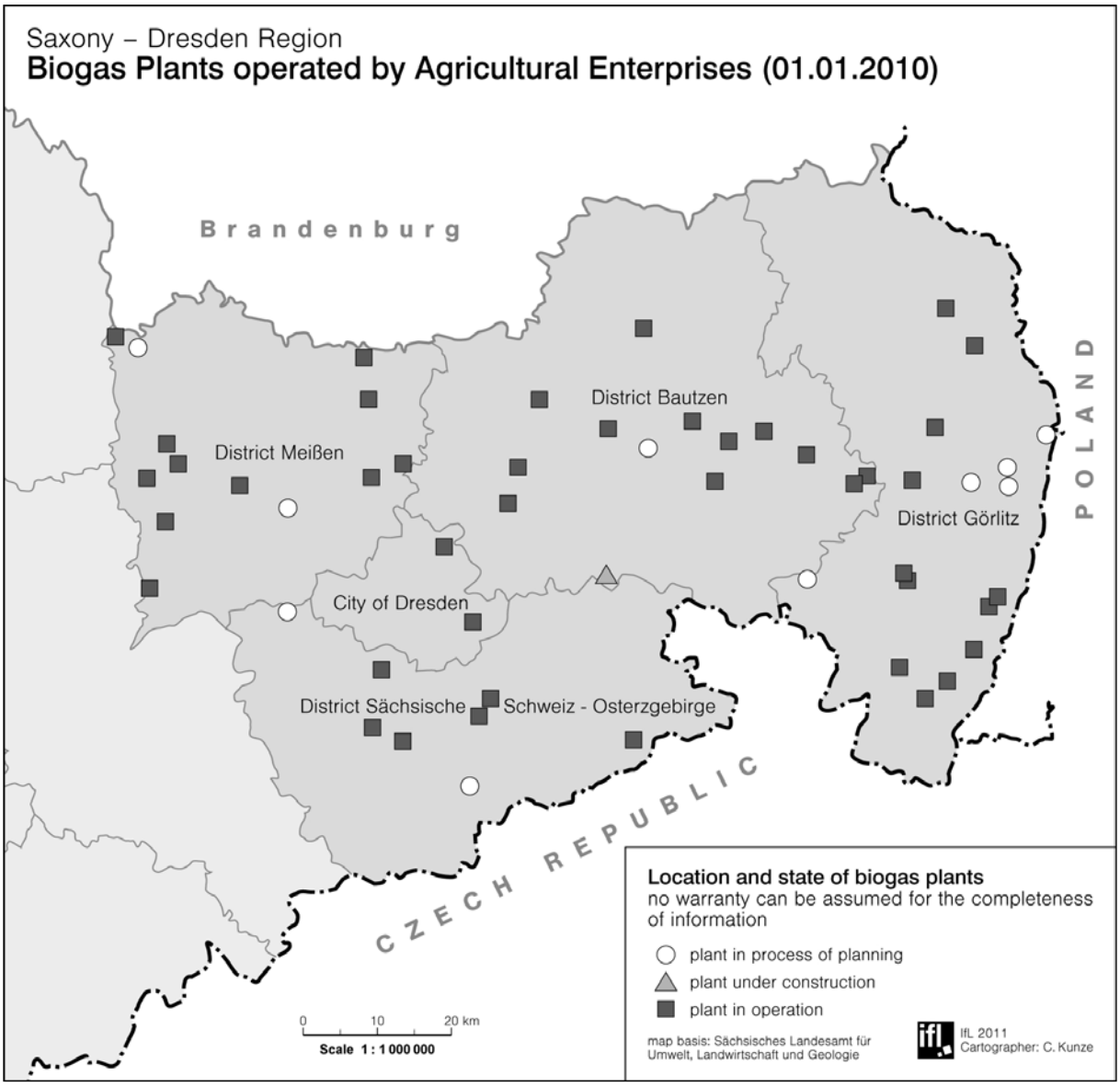
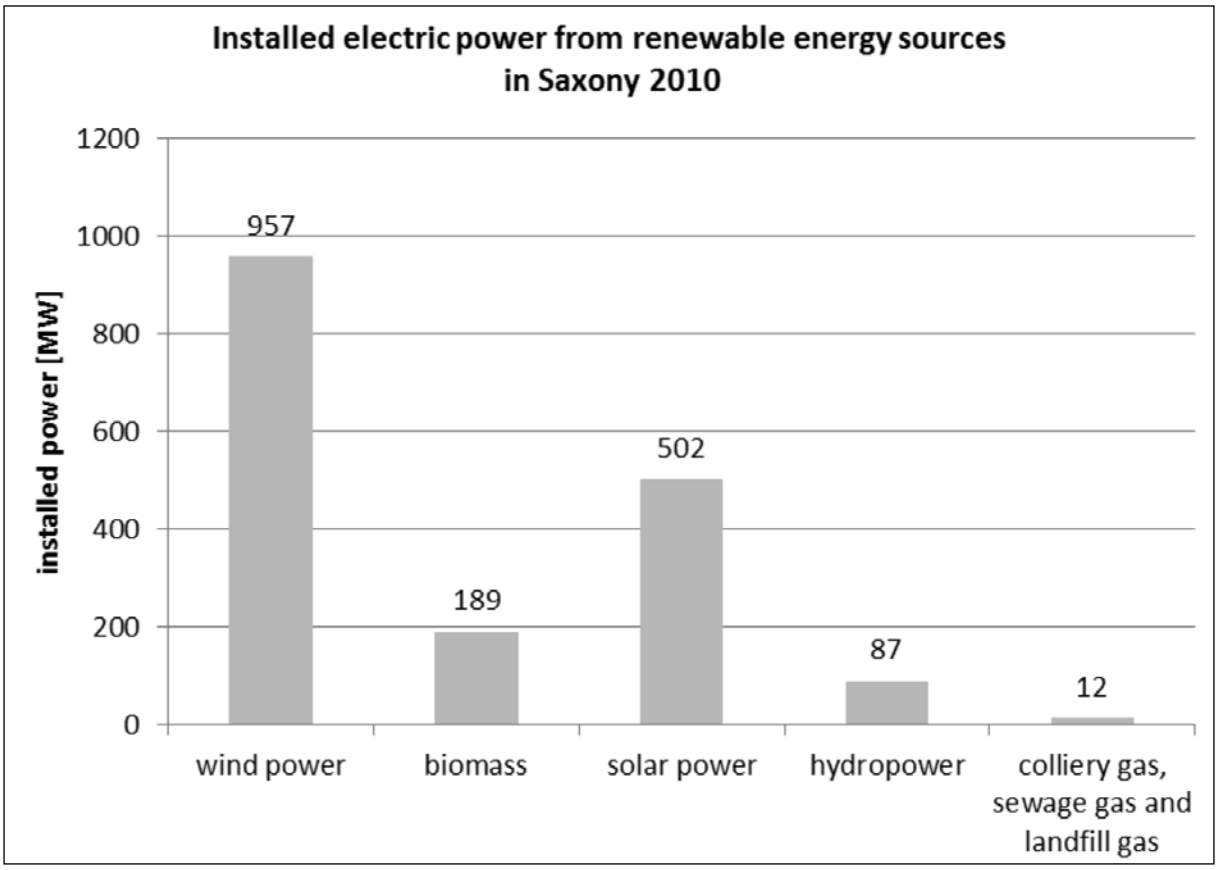


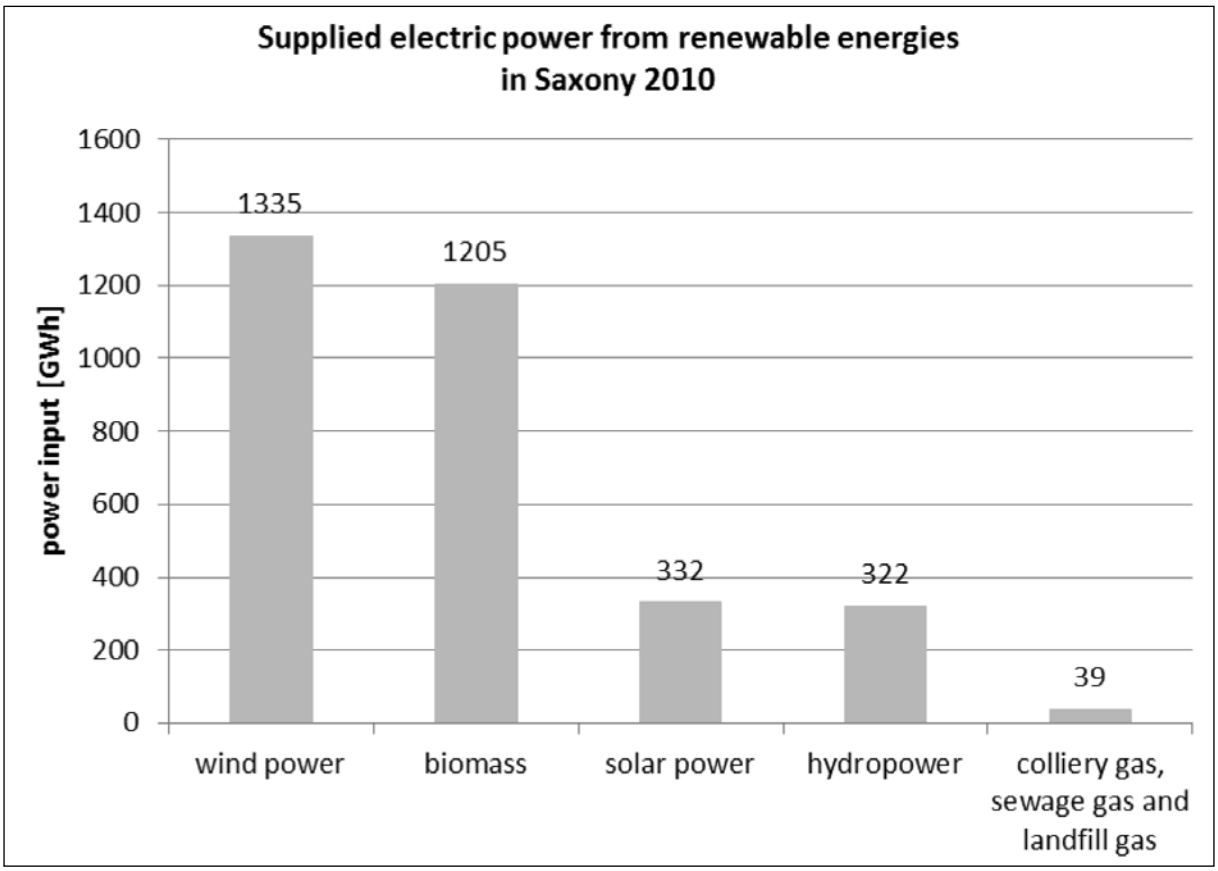
Fig. 8: Biogas plants operated by agricultural enterprises in the Dresden region (Direktionsbezirk Dresden)
Source: own design according to LFULG 2010, p. 11

5.5 Geothermal Power

In the field of geothermal power only near-surface geothermic is used in Saxony until now. In the year 2010 a total number of 957 thermal heat pumps were newly installed. The total number of

thermal heat pumps in the Free State of Saxony increased to 8,488 by the end of 2010. However, most of these installations have only a low heat output (< 30 kW). The total power of all Saxon thermal heat pumps amounted to ca. 107 MWth by the end of 2010 (SAENA 2012e).





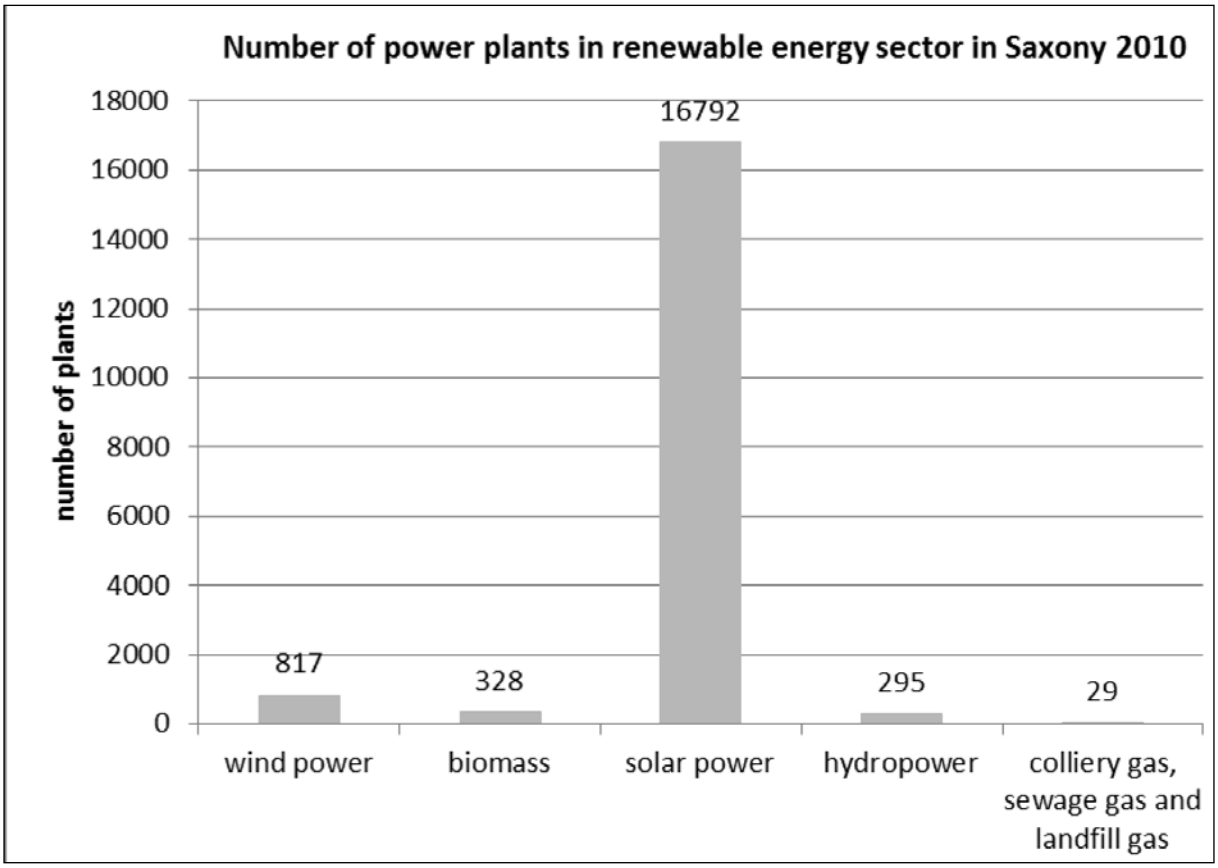


Fig. 9a-c: Renewable energies in Saxony 2010
Source: *SAENA* 2012a

6 Is the Oberlausitz Region on the Way to a Sustainable Energy Region?

In the context of globalization issues related to energy have become more and more important. Fossil energy sources are limited. Consequently, the securing of a stable energy supply is of great importance. Current developments show that conflicts in regions with important deposits of fossil fuels are directly influencing the world market prices of raw materials. Countries and regions all over the world have great difficulties to avoid rising energy prices.

Even today there are still large deposits of brown coal in the Oberlausitz region securing electricity generation for the next decades. For this reason, Lusatian brown coal deposits are of great interest on regional and national level.

Brown coal deposits are still exploited and used for energy generation in the Oberlausitz. Although the mining operator Vattenfall has undertaken a lot of efforts to reduce ecological impacts in the last decade, effects on the regional ecosystem are still enormous. Even today settlements are affected by mining activities, and local inhabitants have to be resettled. Of course, homeowners and municipalities are receiving compensation. Nevertheless, some values such as the sense of home or neighbourhoods in villages cannot be compensated by payments. Interviews with key actors in the Oberlausitz region (Fig. 10) showed that the regional resistance against mining activities did not increase noticeably during the last decade. There is no broad protest movement in the region similar to other German areas such as Gorleben in Lower Saxony (discussed as poten-

tial site for the final storage of nuclear waste in Germany). Different reasons contributed to this situation:

- People in the Oberlausitz region have grown up with mining activities, and they feel traditionally attached to this industrial sector.
- During the last years Vattenfall developed effective strategies for civic participation; affected inhabitants are informed and involved already at an early stage of planning.
- The mining sector is still a very important employer in the Oberlausitz. It is assessed as indispensable from the perspective of regional economy.

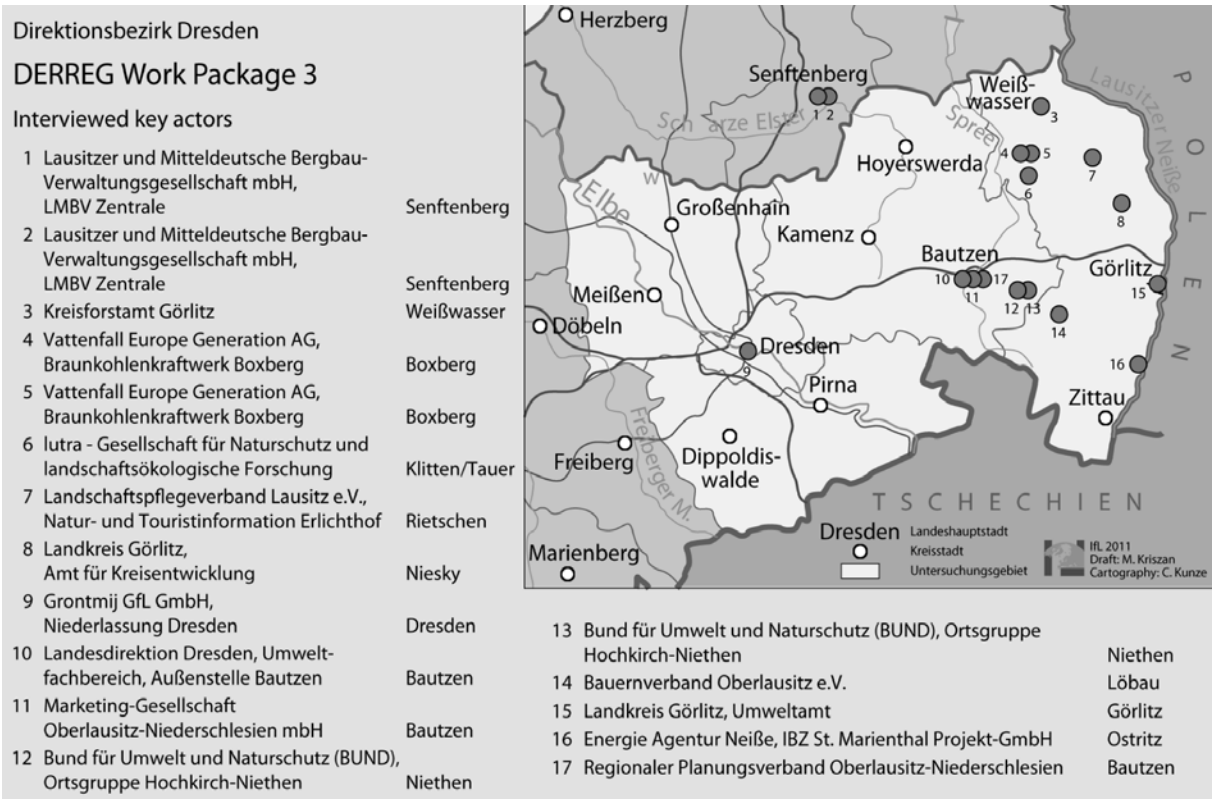


Fig. 10: DERREG Work Package 3 – interviewed key actors in the Oberlausitz region

Besides the exploitation of fossil fuels the development of renewable energies is promoted in Eastern Saxony as well in order to become less dependent on global trends. Meanwhile, numerous wind power plants, solar power plants and biogas plants were built in the Oberlausitz. Some of these plants are extensive such as the solar park at the former airfield in Rothenburg/O.L. This solar park was constructed and is operated by the Munich based company *Gehrlicher Solar AG.* Almost all of such large-scale bioenergy projects are initiated and financed by external corporate enterprises. Also the technical equipment is not produced in the region, and maintenance work is done by external service companies. Consequently, the contribution to the regional value added of these power plants is only marginal, and these plants do not generate new jobs in the region.

Regarding the regional acceptance of renewable energies the situation in the Oberlausitz region is completely different compared to brown coal mining. Many conflicts regarding the utilization of renewable energies arose in recent years. Nearly all kinds of sustainable energy are affected by decreasing acceptance (Fig. 11) and the realization of new renewable energy projects is getting increasingly complex and time-consuming. Numerous citizens' initiatives were established trying

to hinder the construction of renewable energy plants in their neighbourhood.
The following aspects contribute to a low regional acceptance of renewable energies:

- Renewable energies are relatively new in the Oberlausitz region. They are perceived as threat or danger by the local population.
- At the beginning of the bioenergy boom a lot of planning mistakes were committed due to missing planning principles (e.g. wind power plants and biogas plants were built nearby villages with negative effects on the quality of living).
- The effects of the bioenergy sector on the regional economy are assessed as being insignificant.

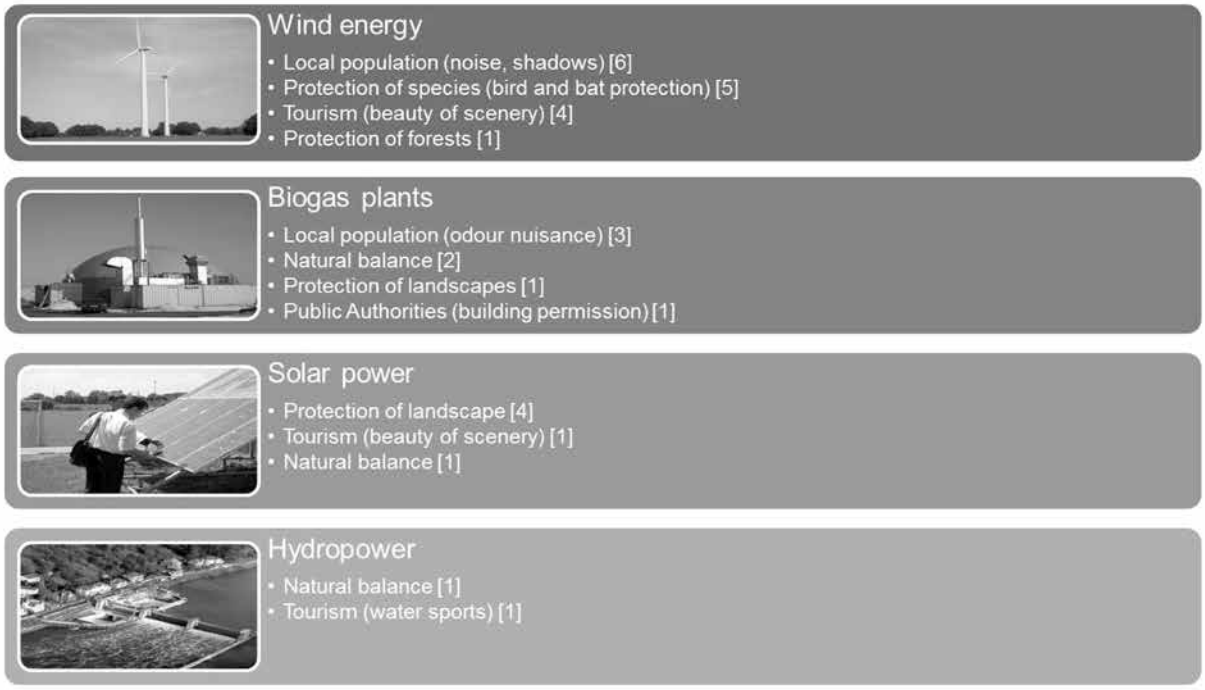


Fig. 11: Regional conflicts between renewable energies and public/private interests in the Oberlausitz (The number in brackets indicates the frequency of mentioning by interviewed key actors.)

Source: own design

What measures will help to raise the regional acceptance regarding renewable energy sources in the long term? Especially the initiation and realization of so-called citizens' power plants and energy cooperatives can help raising the regional acceptance of bioenergy projects. Citizens get the possibility to take actively part in these projects, and they profit from cheap heat supply or capital gains.

Several positive examples already exist within the Oberlausitz region such as the citizens' co-operative Zittau-Görlitz (*Bürger-Energie Zittau-Görlitz eG*)[2]. The citizens' co-operative operates photovoltaic panels on public and private buildings in the district of Görlitz.

2 For more information see the following article 'Towards the Development of a Rural Eco-Economy in the European Countryside', chapter 2.3 'Examples for Regrounding Rural Economic Activities'.

Bibliography

AG Energiebilanzen e.V. (2012): Bruttostromerzeugung in Deutschland von 1990 bis 2011 nach Energieträgern [Online: AG Energiebilanzen e.V.]. Available at: www.ag-energiebilanzen.de [accessed: 23 December 2012].

Brücher, W. (2008): Die Achillesferse der Erneuerbaren Energien: Flächenmangel. Das Beispiel Bioenergie. IN: Würzburger Geographische Manuskripte, 73, pp. 13-21.

Brücher, W. (2009): Energiegeographie. Wechselwirkungen zwischen Ressourcen, Raum und Politik. Berlin, Stuttgart.

Bürger-Energie Zittau-Görlitz eG (2012): Sonnenenergie: aus der Region – für die Region [Online: Bürger-Energie Zittau-Görlitz eG]. Available at: http://www.buerger-energie-zittau-goerlitz.de/ [accessed: 20 December 2012].

Empirica (2006): Modellvorhaben Oberlausitz-Niederschlesien. Handbuch 1.Teil: Analyse. Berlin, Leipzig.

Epp, R. and D. Whitson (eds.) (2001): Writing Off the Rural West: Globalization, governments and the transformation of rural communities. Edmonton.

Freistaat Sachsen (2012a): Bevölkerungsbestand [Online: Statistisches Landesamt des Freistaates Sachsen]. Available at: http://www.statistik.sachsen.de/html/426.htm [accessed: 25 November 2012].

Freistaat Sachsen (2012b): Statistischer Bericht. Bevölkerungsentwicklung im Freistaat Sachsen nach Gemeinden 2011 [Online: Statistisches Landesamt des Freistaates Sachsen]. Available at: http://www.statistik.sachsen.de/download/100_Berichte-A/A_I_2_hj2_11_SN.pdf [accessed: 25 November 2012].

Freistaat Sachsen (ed.) (2009): Sachsen 2020. Wegweiser für unseren Freistaat. Strategisches Grundsatzpapier. Leipzig.

Friedrich, W. (2003): Wirtschaftsgeschichte und Wirtschaftspolitik in der Lausitz. In: Schröder, W. and S. Zundel (eds.): Regionale Entwicklung in der Lausitz. Auf der Suche nach einem wirtschaftlichen Profil, Berlin, pp. 14-55.

Heinrich, P. (2007): Die Planungsregion Oberlausitz-Niederschlesien. Rückblick auf 15 Jahre Entwicklung und Ausblick. In: Geierhos, W. (ed.): Regionalentwicklung der Oberlausitz. Chancen und Perspektiven, Görlitz/Zittau, pp. 24-35.

Hochschule Zittau/Görlitz (ed.) (2010): Der Leitbildentwicklungsprozess von Rothenburg/O.L. Görlitz.

ifo Institut für Wirtschaftsforschung Niederlassung Dresden (ed.) (2005): Die Region Oberlausitz-Niederschlesien – Innovationspotenziale und Perspektiven im Dreiländereck, ifo dresden studien, 38. München.

Mengel, A., A. Reiss, A. Thömmes, U. Hahne, S. von Kampen and M. Klement (2010): Steuerungspotenziale im Kontext naturschutzrelevanter Auswirkungen erneuerbarer Energien. Abschlussbericht des F+E Vorhabens „Naturschutzrelevanz raumbedeutsamer Auswirkungen der Energiewende“. Bonn.

Mudroch, A., U. Stottmeister, C. Kennedy and H. Klapper (eds.) (2002): Remediation of Abandoned Surface Coal Mining Sites. Berlin.

Owens, S. (1990): Land Use Planning for Energy Efficiency. In: Cullingworth, J.B. (ed.): Energy, Land, and Public Policy, New Brunswick/New Jersey, pp. 53-98.

Postlep, R.-D. (2004): Strukturwandel und Wirtschaftsentwicklung in Ostdeutschland – Wo stehen wir heute? In: Stoll, M. (ed.): Strukturwandel in Ostdeutschland und Westpolen, Hannover, pp. 128-132.

Rieser, H.H. (2006): Erneuerbare Energie und Regionalentwicklung. In: Geographica Timisiensis, vol. 15, no. 1-2, pp. 23-29.

Sächsische Energieagentur GmbH, SAENA (2012a): Stand der erneuerbaren Energien in Sachsen [Online: Sächsische Energieagentur GmbH]. Available at: http://www.sachsen-erneuerbar.de/Startseite/Erneuerbare_Energien_FS.html?PHPSESSID=d889e77e566350d2d5e428b93d58af31 [accessed: 29 December 2012].

Sächsische Energieagentur GmbH, SAENA (2012b): Windenergie [Online: Sächsische Energieagentur GmbH]. Available at: http://www.sachsen-erneuerbar.de/Startseite/Erneuerbare_Energien_FS/Windenergie.html [accessed: 23 December 2012].

Sächsische Energieagentur GmbH, SAENA (2012c): Wasserkraft [Online: Sächsische Energieagentur GmbH]. Available at: http://www.sachsen-erneuerbar.de/Startseite/Erneuerbare_Energien_FS/Wasserkraft.html [accessed: 23 December 2012].

Sächsische Energieagentur GmbH, SAENA (2012d): Photovoltaik [Online: Sächsische Energieagentur GmbH]. Available at: http://www.sachsen-erneuerbar.de/Startseite/Erneuerbare_Energien_FS/Photovoltaik.html [accessed: 23 December 2012].

Sächsische Energieagentur GmbH, SAENA (2012e): Geothermie [Online: Sächsische Energieagentur GmbH]. Available at: http://www.sachsen-erneuerbar.de/Startseite/Erneuerbare_Energien_FS/Geothermie.html [accessed: 23 December 2012].

Sächsisches Landesamt für Umwelt, Landwirtschaft und Geologie, LfULG (ed.) (2010): Biogas-BHKW: Einflussparameter auf die Formaldehydemissionen. Schriftenreihe, no. 16 (2010). Dresden.

Sächsisches Staatsministerium für Wirtschaft, Arbeit und Verkehr, SMWA (2012): Entwurf des Energie- und Klimaprogramms Sachsen [Online: Sächsisches Staatsministerium für Wirtschaft, Arbeit und Verkehr]. Available at: http://www.smwa.sachsen.de/set/431/EuK_Kabinett.pdf [accessed: 15 May 2012].

Statistisches Landesamt des Freistaats Sachsen (2012): Ausgewählte Ergebnisse der Energiestatistiken [Online: Statistisches Landesamt Sachsen]. Available at: http://www.statistik.sachsen.de/download/050_W-Ind-Bau/TabSammlung_EN2012.pdf [accessed: 23 December 2012].

Staupe, J. (2007): Region und Globalisierung. Zielvorstellung für die Oberlausitz. In: Geierhos, W. (ed.): Regionalentwicklung der Oberlausitz. Chancen und Perspektiven, Görlitz/Zittau, pp. 9-15.

Vattenfall GmbH (2012a): Unternehmensgeschichte [Online: Vattenfall]. Available at: http://www.vattenfall.de/de/unternehmensgeschichte.htm [accessed: 20 December 2012].

Vattenfall GmbH (2012b): Tagebau Nochten/Reichwalde [Online: Vattenfall]. Available at: http://www.vattenfall.de/de/tagebau-nochten-reichwalde.htm [accessed: 20 December 2012].

Vattenfall GmbH (2012c): Der Neubaublock Boxberg BoxR [Online: Vattenfall]. Available at: http://www.vattenfall.de/de/boxberg.htm [accessed: 20 December 2012].

Vereinigung zur Förderung der Nutzung Erneuerbarer Energien, VEE Sachsen e.V. (2008): Ermittlung der technischen Potenziale der Erneuerbaren Energieträger in Sachsen sowie deren wirtschaftliche Umsetzungsmöglichkeiten für die Stromerzeugung bis zum Jahr 2020. Dresden.

Woods, M. (2007): Attractive Ruralities? Re-thinking European peripheries in the global countryside. In: Knappe, E. and E. Müller (eds.): Ländliche Gesellschaft europäischer Peripherien, ifl FORUM, no.7, pp. 23-38.

Zweckverband Lausitzer Seenland Sachsen (2012): Eine spektakuläre Wasserlandschaft entsteht [Online: Zweckverband Lausitzer Seenland Sachsen]. Available at: http://www.lausitzer-seenland.de/de/wassererlebnis-wassererlebnis.html [accessed: 18 May 2012].

Towards the Development of a Rural Eco-Economy in the European Countryside

Michael Kriszan

1 Introduction

Rural areas that are rich in natural resources, such as fertile soils, forests, rivers (used for hydropower), coal, oil or natural gas have always attracted human population. "Some of the earliest civilizations emerged in the fertile river valleys of the Nile, the Ganges, or the Yangtze […]. These agricultural societies could use the rich natural resources as basis of cultural development" (IIASA 2012). During industrialization, when coal, iron ore, oil and other geological resources were found in these areas, many rural regions became centres of development. In the long run, rural development based on natural resources is only possible, if it is not based on over-exploitation of these resources, but on preservation of the cultural landscape, avoidance of pollution of soils, water and air, and safeguarding of the biological diversity of plants and animals (ibid.).

In the context of growing resource scarcity and the need to de-carbonise production and consumption systems, it is timely to reconsider the potentialities for combining the ecological with rural social and economic development in innovative ways (Kitchen and Marsden 2009, p. 274). Kitchen and Marsden (2009) see the emergence of a new role and potentiality for rural areas, especially at the local and regional level, which can be encapsulated in the emergence of a new rural development paradigm. One central feature of this emerging development paradigm concerns the need to take forward the more specific concept of the rural eco-economy (ibid.).

The following chapter will outline the contemporary crisis in the rural economy and present the rural eco-economy concept as main feature of a new and more territorially based rural development paradigm. In the final section several examples of deepening, broadening and regrounding rural economic activities from the DERREG case study areas are presented as possible first traces of the development of a rural eco-economy in these regions.

2 Concept of the Rural Eco-Economy

According to Marini and Mooney (2006) there is no single form of 'rural economy'. "Rural economies were usually, then, originally based upon extensive agriculture and/or extractive industry (for example, agriculture, forestry and fishing), primary sector activities with high ratios of space to population" (Marini and Mooney 2006, p. 94). Therefore, rural economies became synonymous with lagging or backward economies producing mainly primary goods. However, a reversal took place during the last quarter of the twentieth century as a new flow of capital, goods and opportunities headed toward many rural areas throughout Europe. Among the reasons for this reversal were the capital's search for cheaper labour, the creation of new markets, and better places for living (Marini and Mooney 2006, p. 95). In general, resource-based economic activities in rural areas have diminished in importance as providers of employment and shed labour. However, they also helped to contribute to the growth in other sectors of the economy that have encouraged progressively greater dependence of the rural population upon urban centres for jobs and services (Robinson 2008, p. 24). According to Robinson (2008) this has produced "a cumulative effect of reducing traditional self-reliance and eliminating closed, more sustainable, systems in rural

areas as the globalised economy impacts ever more strongly, even in peripheral regions remote from major urban-industrial centres" (Robinson 2008, p. 24).

Today, in the era of globalization, many rural economies seem to be caught in the process of continuous squeeze between the prices and costs associated with land-based production and the growing market and consumer expectations of high-quality (e.g. in the agro-industrial model of food production) (Kitchen and Marsden 2009, p. 275). This development demands the continued adoption of technological advancements, constant reduction in production costs and continued scale enlargement to reach economies of scale. However, "large areas of rural space are unable to compete in this 'race to the bottom' scenario and, hence, are forced to rely upon the state for more and more support, which, in turn, acts only to moderate the effects of this treadmill" (Marsden 2006, p. 203 according to Marsden 1998). As a result, it has been difficult for key actors to harness the spatial, natural, regional and knowledge-based resources necessary to progress 'real' rural development. Faced with these problems rural actors (e.g. farmers) are being encouraged towards more 'value-adding' and multifunctionality. "In order to escape from the macro-economic traps associated with the devalorisation of the rural resource structures, rural areas require managed exposure to these competitive forces to manage the need to develop, deepen, broaden and reground their interactions with the wider demanding public. Agriculture and wider land-based perspectives need to be reintegrated with broader questions of rural eco-economic development" (Kitchen and Marsden 2009, p. 275) (Fig. 1).

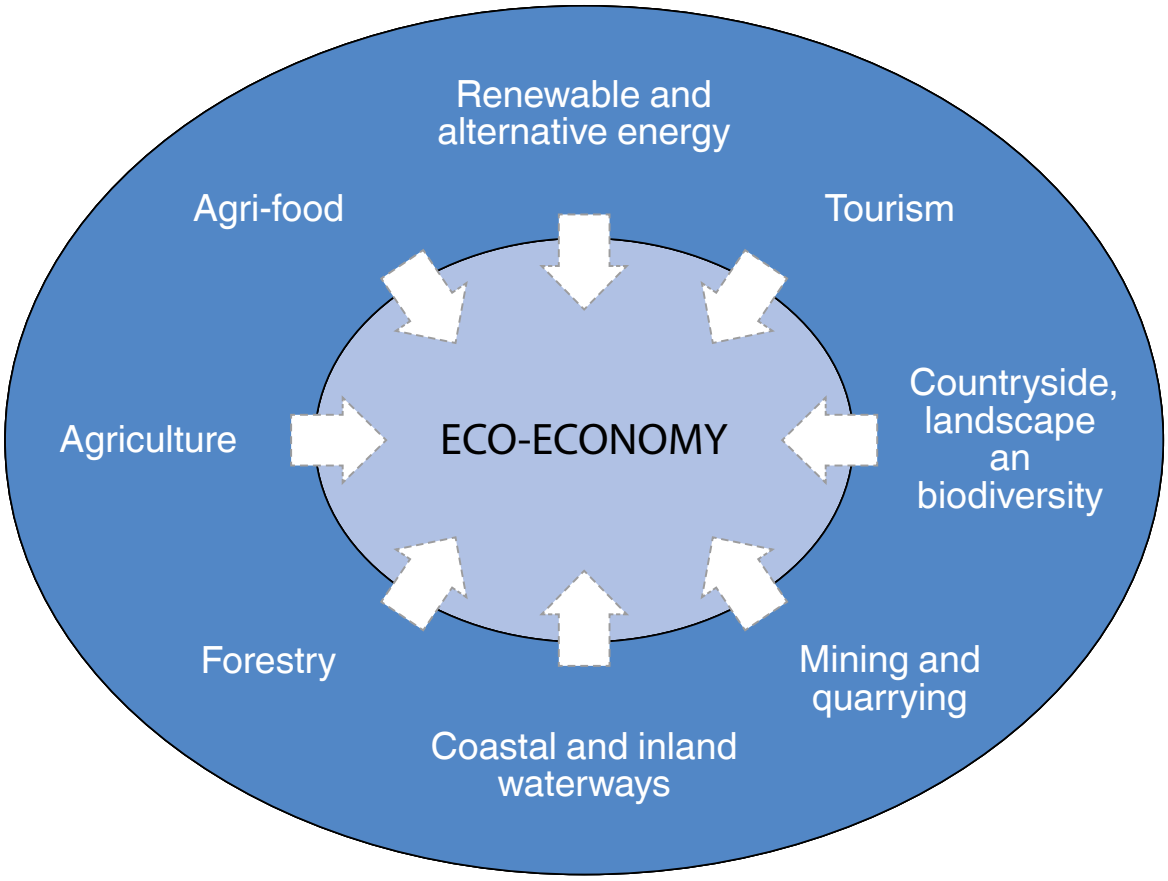


Fig. 1: Potential sectors of the rural eco-economy

Source: Kitchen and Marsden 2009, p. 276

According to Kitchen and Marsden (2009) a potential response to the crisis in the rural economy can be the development of the integrative eco-economy. But how can an integrated and critical conceptualisation of the rural eco-economy be formulated? As Kitchen and Marsden (2009) see it, this requires a better understanding of how rural development processes might benefit, work and engender sustainability in the declining but contested carbon-based society that currently prevails. They suggest "that an integrated range of wider eco-economy approaches are useful to a better understanding of sustainable rural development" (Kitchen and Marsden 2009, p. 276). Approaches that enable deeper insights into the eco-economy are:

- Ecological Modernization (EM) as a normative approach for sustainable development[1],
- Ecological Economics (EE) for its underlying ideas,
- Ecosystems Services (ESS), which seek to assign value to services provided from and by nature.

"Each of these three bodies of theory, to varying degrees, begins to assume the realities of the eco-economy, even if they give little vision as to how it might function in practice. [...] All three strands here take us beyond seeing rural space simply as either an environmentally protected space or a consumption space for the urban populace. Rather, they point us towards the new complexities involved in redefining resource frameworks in ways that can utilise land and water-based resources held in rural spaces to create more positive externalities, allocations and efficiencies" (Kitchen and Marsden 2009, p. 279). Kitchen and Marsden (2009) conclude that EE, ESS and EM provide at least some threats of a theoretical starting-point for considering the rural eco-economy. However, these approaches are only partial in their incorporation of social and economic practices. "They are limited in their focus on building new networks of production and consumption and creating more robust infrastructure (market mechanisms, innovative production standards and initiatives) by which economic and rural development can be sustained" (Kitchen and Marsden 2009, p. 280).

Drawing on and adapting Brown (2001)[2], Kitchen and Marsden (2009) propose an integrated and socially and spatially embedded definition of the eco-economy. They define eco-economy as "the effective social management of environmental resources (as combinations of natural, social, economic and territorial capital) in ways designed to mesh with and enhance the local and regional ecosystem rather than disrupting and destroying it. The eco-economy thus consists of cumulative and nested webs of viable businesses and economic activities that utilise the varied and differentiated forms of environmental resources of rural areas in sustainable ways. They do not result in a net depletion of resources but rather provide net benefits and add value to the environment and to the community" (Kitchen and Marsden 2009, p. 289).

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1 "The ecological modernization theory analyses possibilities for a process of 're-embedding' economic practices – in view of their ecological dimensions – within the institutions of modernity. This modern re-embedding process should result in the institutionalization of 'ecology' in the social practices of production and consumption" (Frouws and MOL 1999, p. 271). In this context Marsden et al. (2003) emphasize that the re-alignment between nature, quality, region and locale producers and consumers for a more ecological rural resource base is one central element of ecological modernisation.

2 Brown (2001) suggested the idea of a so-called environmentally sustainable economy. "An environmentally sustainable economy – an eco-economy – requires that the principles of ecology establish the framework for the formulation of economic policy and that economists and ecologists work together to fashion the new economy" (Brown 2001, p. 4). From Brown's point of view, economists and ecologists working together can design and build an eco-economy - one that can sustain progress.

According to VAN DER PLOEG et al. (2002) the land-based rural economy comprises three interrelated dimensions (Fig. 2):

1. Traditional land use for the production of commodities.
2. Social, cultural and ecological interaction with the rural landscape and its inherent values. Rural enterprises contribute either to maintaining or changing the local ecology - either degrading or enhancing it. In addition they tend to constitute an intrinsic part of local and regional culture and the social fabric of the countryside.
3. Mobilisation and use of resources. Rural enterprises need to be in a position to exploit or create value from those natural resources.

In and through the processes of rural development the relations between these three aspects are being both socially reproduced and transformed by new attempts of rural actors to revalue and define their economic and resource structures (KITCHEN and MARSDEN 2009, p. 280). Traditional economic activities such as agriculture and forestry are transformed, diversified and expanded by linkages and associations with new actors and agencies (see VERGUNST et al. 2008). There is a focus on new products that add more value in the new markets demanded by wider society: organics, shorter supply chains and value-added products (KITCHEN and MARSDEN 2009, p. 280).

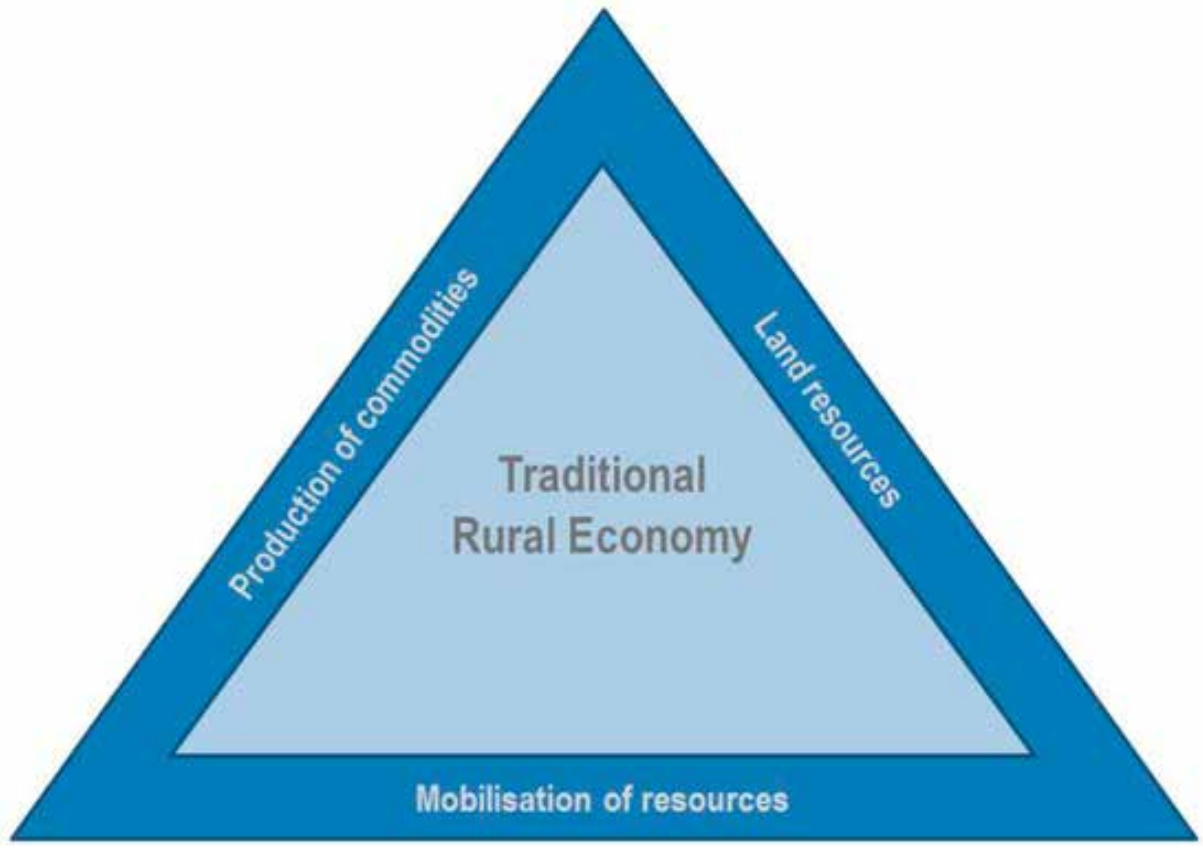

Fig. 2: The three sides of the traditional rural enterprise
Source: VAN DER PLOEG et al. 2002, p. 12

Figure 3 adapts and specifies some of the main features and examples of the rural eco-economy. "Some, but certainly not all, are farm-based, as developed in earlier analyses. Rather this model [...] incorporates a wider vector of rural enterprises and places these in a regional rather than a

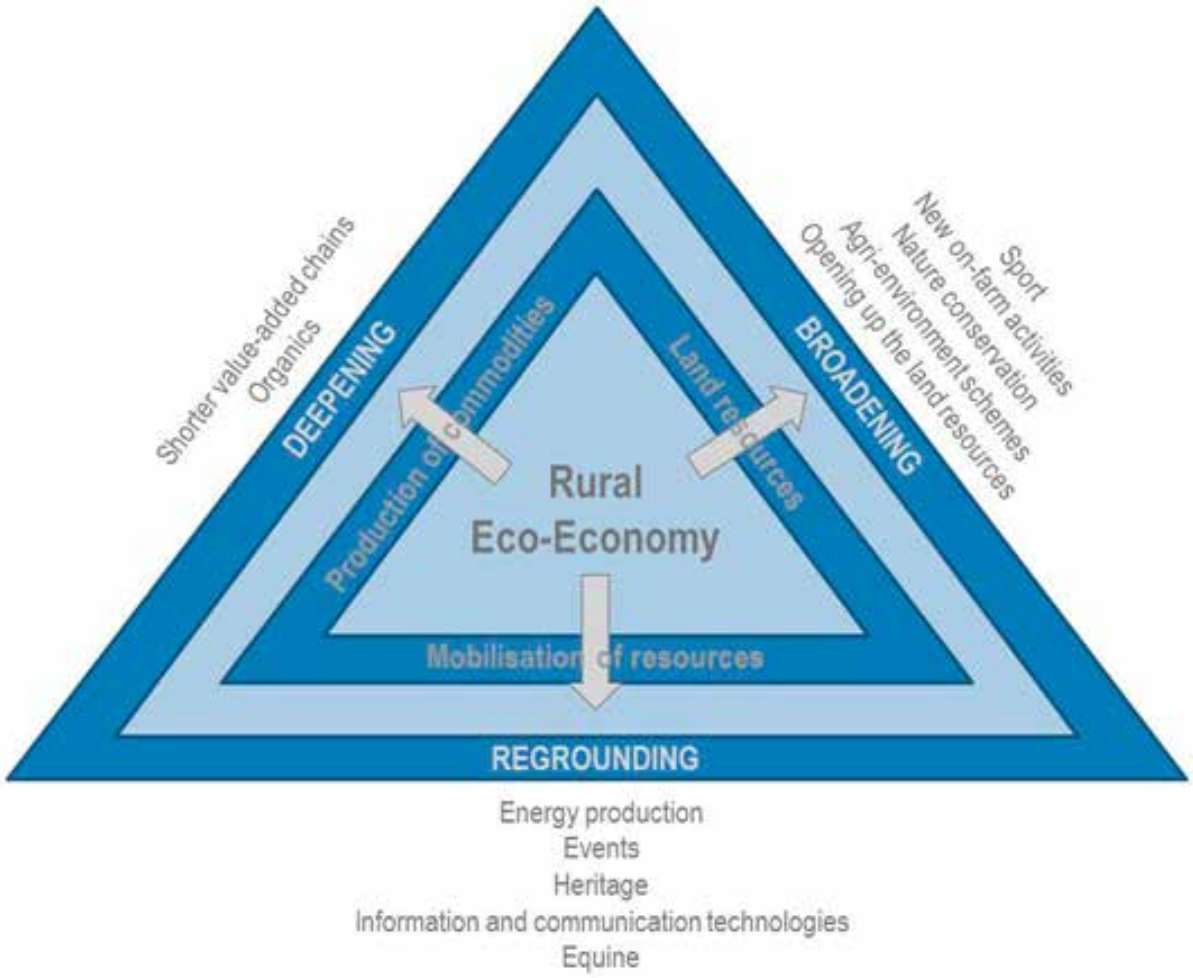

Fig. 3: The dynamics of rural development at enterprise level
Source: Kitchen and Marsden 2009, p. 281 adapted from van der Ploeg et al. 2002, p. 12

farm-based level of analysis. It also specifies, in this wider vector, three interrelated postulates for the development of the rural eco-economy: broadening, deepening and regrounding" (Kitchen and Marsden 2009, p. 282).

- Typical examples of deepening are organic farming, high quality foods through on-farm production and short linkages between production and consumption created by selling to local markets.
- The interactions with the rural environment are subject to broadening, which includes nature conservation, providing agri-tourism, leisure, sports and amenity, heritage attractions and energy crops.
- Rural enterprises are grounded in new or different sets of resources and become involved with new patterns of resource use. Examples of regrounding the mobilisation and use of resources are energy production, special events, equine activities as well as information and communication technologies (Kitchen and Marsden 2009, p. 280).

These processes – deepening, broadening and regrounding – are able to recombine and more effectively utilise natural resources. They present ways in which new or combined environmental goods and services can be created and they suggest new forms of the interdependence of the economy and ecology (Kitchen and Marsden 2009, p. 289). Thus, processes of deepening, broa-

dening and regrounding embody highly relevant ways for reconstituting nature-society relations within rural development, which may facilitate a re-embedding of rural economic activities in the local ecology (Marsden 2006, p. 202).

In conclusion, Kitchen and Marsden (2009) suggest that a more sustainable rural eco-economy might be the result, provided that the state, as well as rural businesses, begin to play a more ecologically modernising role.

3 Development of an Eco-Economy in the DERREG Case Study Areas

Processes of deepening, broadening and regrounding are able to recombine and more effectively utilise natural resources. They present ways in which new or combined environmental goods and services can be created and they suggest new forms of the interdependence of the economy and ecology (Kitchen and Marsden 2009, p. 289). The initiatives and projects presented in the following are some of the good practice examples identified in the context of the DERREG project (work package 3) which can be seen as effective 'bottom up' responses to globalization and its impacts.

"If sustainable rural development is to have a chance in rural Europe" – Marsden (2006) arguments – "we will need an [...] empirical base from which to progress the citation of interesting examples to the reconstruction of a new round of real rural and sustainable modernization" (Marsden 2006, p. 211). The good practice examples presented hereinafter can make a contribution towards this postulated empirical base. All of them demonstrate rural development activities that attempt to build upon natural resources in different and innovative ways. Moreover, the selected initiatives and projects from the DERREG case study areas are not isolated or unique examples. They rather need to be seen as parts of a wider process of nested web development. According to Kitchen and Marsden (2009) this type of initiatives and projects "are related components of a socially embedded cumulative and regional process of practices and developments that are beginnings of a new rural development paradigm based upon the reconstruction of a rural eco-economy. They are dynamic spatially and socially clustered entities and ones that […] are assisted, at various stages by state intervention" (Kitchen and Marsden 2009, p. 289).

3.1 Examples for Deepening Rural Economic Activities

An example for deepening rural economic activities from the DERREG case study areas is the registered association *Bliesgau Genuß e.V.* (Bliesgau Consumption Association) in the Saarland region. It was established in 2007 to support regional marketing of goods produced within the UNESCO Biosphere Reserve Bliesgau. The association unites regional producers, processors, retailers, caterers, conservationists and consumers to develop joint ideas and projects which strengthen and expand regional value creation (Biosphärenzweckverband Bliesgau 2012). Apart from the marketing of products firsthand (e.g. direct marketing from farms and shops, weekly markets and seasonal festivals) additional ways of marketing were created such as the *Bliesgau-Regal* (shelf in shops that offers regional products) or *Bliesgau-Kiste* (subscribed box including regional fruits and vegetables). Meanwhile, some producers also supply selected restaurants within the region.

A further example is the Slovenian project *Diši po Prekmurju* (Scent of Prekmurje). The implementation of the project started in the year 2005, and it was initially supported by the EU

program PHARE. Today, Scent of Prekmurje is a trade mark connecting the providers of culinary and other gastronomic specialties of the Prekmurje region. It unites the producers, providers and fans of quality food with the goal to improve the quality as well as to protect and promote the culinary specialties of Prekmurje (Diši po Prekmurju 2012a). The trade mark is promoted through several annual events in various places in Slovenia. Beside these bigger events the 'Association for the Promotion and Protection of Prekmurje Specialties' organizes further promotional events together with local caterers. There are two products from the region which they already managed to standardize and protect – Prekmurje ham and Prekmurje layer pie (Diši po Prekmurju 2012b).

3.2 Examples for Broadening Rural Economic Activities

An example for broadening rural economic activities from the DERREG case study areas is the project *Nachhaltiges Bergwiesenmanagement im Zittauer und Lausitzer Gebirge* (Sustainable management of mountain meadows in Zittau Mountains and Lausitzer Mountains) located in the German, Polish and Czech border triangle. The project, initiated in 2006, was funded by the *Deutsche Bundesstiftung Umwelt* (German Environment Foundation). It aims at a sustainable way of utilization and preservation of grasslands in mountain areas. To achieve this goal, it is advised to use the produced biomass also for energetic purposes. Grasslands and meadows are not only important as animal feed but also as open country for habitat protection. Besides, grasslands contribute to a high diversity of the landscape, and thus to high attractiveness regarding tourism. Against this background, the preservation of grassland areas is an important matter that should be supported. In order to meet the aims of nature protection the management of grasslands should be based on principles of extensive land use, respectively with limitations regarding the utilization of pesticides. Today's challenge is to preserve the traditional meadow landscapes by regular and extensive forms of utilization. However, this has to be done in a profitable way. A co-operation of the district Görlitz, the University of Applied Sciences Zittau-Görlitz, the Society for Landscape Conservation Zittau Mountains and several Czech partners was established at the beginning of the project. The Society for Landscape Conservation is the main consumer of biomass. The project should serve as reference project and provide a contribution to the future development of the region as a whole (Kramer et al. 2008).

A further example is the Slovenian project *Mlinarska pot* (mill trail). It was initially supported by the EU-INTERREG III A Neighbourhood Programme Slovenia–Hungary-Croatia 2004-2006. The 'mill trail'-project was chosen as a good practice due to its impact on sustainable tourism and overall development of Pomurska, especially on the municipalities along the river Mura. The project addresses the cultural, technical and indirectly also the natural heritage of the area with the main goal to preserve these specific regional potentials and to use them in a sustainable way (Zavod za turizem in kulturo Beltinci 2012). The main connecting elements along the river are several mills where traditional skills – typical for the region – are presented. In this way regional traditions in handicraft are preserved and also reactivated as a part of a sustainable regional development.

3.3 Examples for Regrounding Rural Economic Activities

An example for regrounding rural economic activities from the DERREG case study areas is the registered cooperative *Bürger-Energie Zittau-Görlitz e.G.* (Citizens' energy cooperative Zittau-Görlitz) in the Oberlausitz region. The citizens' cooperative operates photovoltaic panels on public

and private buildings in the district Görlitz. As a first step of implementation, solar panels were installed on the roof of a regional credit bank in May 2010. Further photovoltaic panels were installed within just a short period of time in other villages (Bürger-Energie Zittau-Görlitz eG 2012a).

The main aims of the cooperative are:

- The production of climate-friendly and environmental-friendly energy.
- The development of decentralized production sites to avoid large losses of energy efficiency.
- Gaining attractive profits for the members respectively owners of the cooperative.
- The contracting of regional enterprises from handicrafts for the installation and maintenance of plants.
- Offering additional sources of income to house owners.

The citizens' co-operative was founded in September 2009 and by June 2010 had already recruited 48 members owning more than 300 cooperative shares. The regional credit bank is responsible for the procurement of the cooperative shares. The citizens' cooperative can be seen as a new way for the local population to get engaged in and to profit from renewable energy projects. Citizens get the possibility to become shareholders of the cooperative and thus gain profits from the operation of renewable energy plants (Bürger-Energie Zittau-Görlitz eG 2012b).

A further example is the *County Clare Wood Energy Project* (CCWEP) in Ireland. It is a Forest Service funded project whose aim is to promote the installation of wood biomass boilers fuelled by wood chip from farm forests in the county. It is managed jointly by Clare Local Development Company (the LEADER group in County Clare) and Teagasc (Agriculture and Food Development Authority). Since the project was launched in late 2005, CCWEP has worked with a number of companies and organizations in County Clare to identify suitable sites/buildings for the installation of medium sized wood biomass boilers and has provided on-going technical support and training for boiler procurement and installation. Significant work on the establishment of a local wood chip supply chain has also been undertaken. CCWEP's role is to provide advice and information to forest owners on how to access the wood energy market, and to help make connections with potential buyers, which are profitable for both. Although County Clare is outside the West of Ireland case study region the Teagasc Forestry Development Officer working on this project works within the Galway region. Additionally, the project is a national pilot project that may be rolled out in counties in the West Region in the near future (County Clare Wood Energy Project 2012).

Bibliography

Biosphärenzweckverband Bliesgau (2012): Regionalvermarktung – denn das Gute liegt so nah [Online: Biosphärenzweckverband Bliesgau]. Available at: http://www.biosphaere-bliesgau.eu/index.php/de/produkte-und-partner [accessed: 20 December 2012].

Brown, L. R. (2001): Eco-Economy: Building an Economy for the Earth. New York.

Bürger-Energie Zittau-Görlitz eG (2012a): Beteiligungsangebot/Projektbeschreibung [Online: Bürger-Energie Zittau-Görlitz eG]. Available at: http://www.buerger-energie-zittau-goerlitz.de/pages/informationen/projektbeschreibung.php [accessed: 20 December 2012].

Bürger-Energie Zittau-Görlitz eG (2012b): Sonnenenergie: aus der Region – für die Region [Online: Bürger-Energie Zittau-Görlitz eG]. Available at: http://www.buerger-energie-zittau-goerlitz.de/ [accessed: 20 December 2012].

County Clare Wood Energy Project (2012): Wood Energy is a new, sustainable, clean and efficient form of heating, and more importantly, a home grown renewable resource [Online: County Clare Wood Energy Project]. Available at: http://www.ccwep.ie/woodenergy.asp [accessed: 20 December 2012].

Diši po Prekmurju (2012a): "Scent of Prekmurje" Trademark [Online: Diši po Prekmurju]. Available at: http://www.disi-po-prekmurju.si/en/informacija.asp?id_meta_type=46 [accessed: 20 December 2012].

Diši po Prekmurju (2012b): Protected Products with a Certificate [Online: Diši po Prekmurju]. Available at: http://www.disi-po-prekmurju.si/en/informacija.asp?id_meta_type=50 partner [accessed: 20 December 2012].

Frouws, J. and A. Mol (1999): Ecological modernization theory and agricultural reform. In: de Haan, H. and N. Long (eds.): Images and realities of rural life: Wageningen perspectives on rural transformations. Assen, pp. 269-286.

International Institute for Applied Systems Analysis, IIASA (2012): Sustainable Rural Development (SRD). Dimensions of Rural Development. Natural Resources & Environment [Online: IIASA]. Available at: http://webarchive.iiasa.ac.at/Research/SRD/rc/rc_22.htm [accessed: 21 December 2012].

Kitchen, L. and T. K. Marsden (2009): Creating Sustainable Rural Development through Stimulating the Eco-economy: Beyond the Eco-economic Paradox? In: Sociologia ruralis 49, 3, pp. 273-293.

Kramer, M., C. Seidler, M. Meyer and M. Kändler (2008): Nachhaltiges Bergwiesenmanagement im Zittauer und Lausitzer Gebirge - Konzept einer Machbarkeitsstudie. Endbericht zum DBU-Projekt Nr. 609341. Zittau.

Marini, M. B. and P. H. Mooney (2006): Rural economies. In: Cloke, P.; Marsden, T.; Mooney, P. (eds.): Handbook of Rural Studies. London, pp. 91-103.

Marsden, T. K. (2006): The Road Towards Sustainable Rural Development: Issues of Theory, Policy and Practice in a European Context. In: Cloke, P., T.K. Marsden and P. Mooney (eds.): Handbook of Rural Studies. London, pp. 201-229.

Marsden, T. K. and E. Smith (2005): Ecological entrepreneurship: sustainable development in local communities through quality food production and local branding. In: Geoforum 36, pp. 440-451.

Marsden, T.K., P. Milbourne, L. Kitchen and K. Bishop (2003): Communities in nature: the construction and understanding of forest natures. In: Sociologia Ruralis 43, 3, pp. 238-257.

Ploeg, J. D. van der, A. Long and J. Banks (eds.) (2002): Living countryside: rural development processes in Europe: the state of the art. Amsterdam.

Robinson, G. M. (2008): Sustainable Rural Systems: An Introduction. In: Robinson, G. M. (ed.): Sustainable Rural Systems: Sustainable Agriculture and Rural Communities, pp. 3-39, Aldershot.

Vergunst, J., A. Arnason, R. Macintyre and A. Nightingale (2008): Using Environmental Resources: Networks in Food and Landscape. In: Robinson, G. M. (ed.): Sustainable Rural Systems: Sustainable Agriculture and Rural Communities. Aldershot, pp. 143-169.

Zavod za turizem in kulturo Beltinci/Office for Tourism and Culture Beltinci (2012): Projekti: Mlinarska pot – Predstavitev projekta [Online: Zavod za turizem in kulturo Beltinci]. Available at: http://www.beltinci.net/Predstavitev_projekta,579,0.html [accessed: 20 December 2012].

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